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## CONSTRUCTION AND OPERATION OF THE WEST COAST OTH-B RADAR SYSTEM

Lake and Klamath counties, Oregon; Modoc and Sacramento counties,  
California; Pierce County, Washington; Elmore County, Idaho

## FINAL ENVIRONMENTAL IMPACT STATEMENT

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Abstract

This document describes the probable environmental impacts of constructing and operating a new surveillance and tracking radar that operates in the High Frequency band of the electromagnetic spectrum. The radar system will consist of three very large transmitting antennas located in south-central Oregon, three somewhat smaller receiving antennas located in northeastern California, a base for providing logistic and maintenance support to the antenna sites, and an operations center. Two candidate sites were considered for the transmitting antennas, two for the receiving antennas, one for the support base, and four for the operations center. The impact analysis found that there is no evidence that chronic exposure of humans to the radiofrequency radiation levels outside the exclusion fence surrounding the transmitter site is likely to be harmful. Electromagnetic interference with telecommunications systems in the area is unlikely, but handling and use of electroexplosive devices would be unsafe within about 6 miles and possibly at greater distances, depending on soil conductivity. No significant adverse biophysical impacts are anticipated at any site, although both precautionary and mitigation measures would be taken. No significant adverse socioeconomic impacts are expected at any site, but care must be taken with potential cultural resource finds. Temporary economic stimulation of local economies would result from construction activities, but the benefits of continuing operations would be small.

## PARTICIPATING AGENCIES:

U.S. Bureau of Land Management, Lakeview District

U.S. Forest Service, Modoc National Forest

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## SUMMARY

### FINAL ENVIRONMENTAL IMPACT STATEMENT Construction and Operation of the West Coast OTH-B Radar System

#### Description of the Action

The Over-the-Horizon Backscatter (OTH-B) radar is a new surveillance and tracking radar system that the U.S. Air Force (USAF) plans to construct and operate. The purpose of this system is to detect, track, and give early warning of aircraft approaching North America.

The functional components of the OTH-B radar will be geographically separated from one another: different sites will be required for the transmitter and receiver, and the operations center, which will process radar data, will be separate from either of those. The two candidate areas for siting the transmitter are located in Oregon, and the two candidate areas for the receiver are in northern California. The candidate sites for the operations center are McClellan Air Force Base (AFB), California; Kingsley Field, Oregon; McChord AFB, Washington; and Mountain Home AFB, Idaho. Kingsley Field is also the only candidate site for the support base that would house security and maintenance personnel for the transmitter and receiver sites.

A full-scale East Coast OTH-B system, superseding the Experimental Radar System (ERS), is under construction in Maine, and planning for a third, south-looking system has begun.

The OTH-B transmitter and receiver sites require very large fixed antennas. The three antennas and related structures at the transmitter site would require about 2,800 acres; the three at the receiver site would require about 1,200 acres. The operations center would be housed in a conventional building of about 32,000 ft<sup>2</sup>. Another 18,000 ft<sup>2</sup> would be required for a software support facility. Approximately 770 operating and maintenance personnel would be required; of those, about 400 would be located at the operations center.

#### Public Concerns

In conformance with the requirements of the Council on Environmental Quality, the Air Force convened a series of scoping meetings in communities at or near the candidate sites. Many questions about the characteristics and features of the radar system were asked, and the following major concerns were expressed:

- o Interference with ham radio operators, television, FM radio, CB radio, and land and maritime mobile radio.
- o Biomedical effects of long-term exposure to radiofrequency radiation.
- o Effects on migratory birds and other wildlife.
- o Changes in public use of the forests.
- o Fire hazards.
- o Economic impact, including employment.
- o Provision of facilities and services.

#### Radiofrequency Radiation

Detailed calculations were made to estimate the magnitude and distribution of the radiofrequency radiation (RFR) from the OTH-B transmitter, and the resulting values were used to estimate the possible effects of RFR. The validity of the computational methods was confirmed by measurements made during June 1981 at the ERS at Moscow AFS, Maine.

The proposed location of the exclusion fence around the transmitter was selected so that the calculated average power densities at ground level outside the fence in any direction would not exceed  $0.1 \text{ mW/cm}^2$  for any OTH-B frequency. This is the highest value of RFR to which the general public would be exposed. Predicted values of average power density at ground level are less than  $0.002 \text{ mW/cm}^2$  for all inhabited areas in the general vicinity of the two candidate transmitter study areas. This value is lower than the permissible limits of any nation for general population exposure.

People who are airborne in the surveillance volume of the OTH-B transmitter may be exposed to the main beam for brief intervals. Because no airstrips are closer than 15 miles from either of the candidate transmitter study areas, people in established takeoff and landing patterns would be exposed to power densities far smaller than  $0.1 \text{ mW/cm}^2$ . Small regions (about 250 ft horizontally by less than 100 ft vertically) in front of the transmitter would be subject to instantaneous power densities as high as  $260 \text{ mW/cm}^2$ . The highest instantaneous value of power density along the boresight diminishes to  $1 \text{ mW/cm}^2$  at about 4,060 ft; the highest value of time-averaged power density decreases to  $1 \text{ mW/cm}^2$  at about 1,515 ft.

Federal regulations governing general aviation require that airplanes maintain a minimum altitude of 500 ft over population centers and 1,000 ft over dense gatherings of people, such as in a stadium. In sparsely populated regions such as the candidate transmitter study



areas, there are no altitude restrictions. Thus, in the absence of restrictions, occupants of small aircraft might occasionally fly past the transmitter and be exposed to RFR. Calculations indicate that if an airplane flew at a constant altitude of 500 ft along the boresight, the airplane would be exposed, at worst, to a maximum instantaneous power density of  $2.3 \text{ mW/cm}^2$ . (Similar calculations for an altitude of 1,000 ft yielded a maximum instantaneous power density of  $0.58 \text{ mW/cm}^2$ .) Although a time-averaged power density greater than  $1 \text{ mW/cm}^2$  would occur in small regions in the immediate vicinity of the antennas, the small likelihood of aircraft flying so close, the brevity of exposure to such power densities if they did, and the shielding effect of the aircraft make it very unlikely that people within the aircraft would suffer any RFR-related health effects. To further reduce the chance of exposure, the Air Force will request that the Federal Aviation Administration issue a Notice to Airmen (NOTAM) or other form of notification restricting the approach of aircraft to no closer than 5,000 ft in front and one-half mile to each side of each transmitting antenna.

#### Environmental Effects

Table S-1 summarizes the expected environmental impacts resulting from construction and operation of the West Coast OTH-B radar.

#### Human Health

Because radiation safety is of paramount importance, an in-depth, critical review of the available literature on the biological effects of RFR was carried out. This review serves as the primary reference for the human health aspects of both this environmental impact statement (EIS) and EISs for other proposed Air Force RFR-emitting systems. This review does not include any system-specific information; rather, it addresses the present state of scientific knowledge on the biological effects of RFR in the range from 0 to 300 GHz. The conclusions regarding possible RFR bioeffects of OTH-B were derived from the review by considering the most pertinent and scientifically significant results.

Collectively, the results of the relatively few epidemiologic studies performed in the United States and other countries are not regarded as evidence that environmental levels of RFR constitute a hazard to the general population.

Most U.S. experiments with animals that yielded recognizable and repeatable effects of exposure to RFR were performed at incident average power densities of more than about  $2 \text{ mW/cm}^2$ . Such effects are thermal, in the sense that the RFR energy is absorbed by the organism as widely distributed heat that increases the whole-body temperature, or as internally localized heat that is biologically significant even with functioning natural heat-exchange and thermoregulatory mechanisms operating.

The existence of threshold values of average power density has been experimentally demonstrated for some effects and postulated for others. Exposure to RFR at average power densities exceeding the threshold for a specific effect for durations of a few minutes to a few hours (depending on the value) may or may not cause irreversible tissue alterations. The heat produced by indefinitely long or chronic exposures at power densities well below the threshold is not accumulated because its rate of production is readily compensated for by heat-exchange processes or thermoregulation.

Most investigations involving chronic exposures of mammals yielded either no effects or reversible, noncumulative behavioral or physiological effects for average power densities exceeding  $2 \text{ mW/cm}^2$ . In the few cases in which irreversible adverse effects of exposure were found, such effects were absent for average power densities below  $2 \text{ mW/cm}^2$ . In a relatively small number of investigations, biological effects of RFR were reported at incident average power densities less than about  $2 \text{ mW/cm}^2$ .

In sum, the review of the relevant literature indicates that there is no reliable scientific evidence to suggest that chronic exposure to RFR from the OTH-B transmitter outside the exclusion fence would be deleterious to the health of even the most susceptible members of the population such as the unborn, infirm, or aged.

#### Electromagnetic Interference and Hazard Effects

The OTH-B transmitter would operate from 5 to 28 MHz, which is within what is commonly called the HF (High Frequency) band. An important characteristic of radio signals in this portion of the electromagnetic spectrum is that they can be refracted by layers of naturally occurring ionization at heights of 100 miles or more, so that the signal returns to the ground at distances of thousands of miles. Users of the HF band take advantage of this phenomenon, referred to as sky-wave propagation, to communicate between points as far away as the other side of the earth. The band as a whole is shared with a number of users: other OTH radars, radio systems for air-to-ground and ship-to-shore communications, systems for standard time and frequency broadcasts, the Amateur Radio Service, Citizens Band radio, and others.

The specific portions of the HF band within which the OTH-B radar would transmit are those bands also occupied by transmitters of the Fixed Service and the Broadcast Service. The users of the Fixed Service operate point-to-point links for the transmission of information from one point on the globe to another. Broadcast Service transmitters are also located throughout the world, broadcasting news, music, religious programs, and propaganda. They use the HF bands because the sky wave allows them to reach audiences that they could not otherwise reach.

The radar can operate on a large number of channels in its frequency range. Its frequency usage cannot be predicted exactly, however, because it will depend not only on changing ionospheric conditions, but also on

the independent frequency usage of the other occupants of these bands, which the radar will attempt to avoid. Ionospheric conditions would dictate the particular range of frequencies that must be used to propagate the sky-wave signal to the sectors to be observed. Changing ionospheric conditions or the presence of interference would necessitate a frequency change; in selecting the next frequency, the operators would place priority on finding a clear channel in the Fixed-Service bands before considering using a channel in the Broadcast-Service bands.

The radar operators would monitor potential operating frequencies to determine whether any other potential user was occupying the frequency. The monitoring receiver system, with its large-aperture, steerable-beam antenna, would be extremely sensitive. It would generally be able to detect the existence of operating HF transmitters throughout the world--whether their signal actually propagated by specular ionospheric reflection to the OTH-B receiver or whether it propagated only to some distant region from which only weak scattered energy, not detectable by most systems, would reach the OTH-B receiver system. Thus, it is highly unlikely that the radar would be operated on a frequency already occupied. Intermittent operation of the Experimental Radar System (ERS) in this manner for approximately 2300 hours during the period between June 1980 and December 1981 (well over a year) resulted in no confirmed interference complaints from either Fixed stations or from listeners on the International Broadcast bands.

The radar's modulation has been carefully designed; its spectrum has been shaped so that very little energy would be radiated outside the operating bandwidth where it could interfere with reception in the adjacent bands. Occupants of these adjacent bands include the Amateur Radio Service, the Maritime Mobile and Aeronautical Mobile Services, standard time and frequency services, and, when the radar is in the Fixed bands, the International Broadcast Service. The radar would be operated sufficiently far from the band edges not to produce adjacent-channel interference.

The radar would also radiate low-power harmonics of its fundamental frequencies that could interfere with systems using those frequencies. Because the harmonics would typically be at frequencies far above the HF band, they would not propagate by sky wave to distant regions; thus, any interference effects would be strictly local. Further, if harmonic interference were found to exist, it would result from transmission only on particular frequencies. Among the systems considered for potential interference from the radar's harmonics were television, land-mobile radio, air-to-ground radio, and VHF omnirange (VOR) air navigation beacons.

The region of the candidate OTH-B transmitter study area is beyond the main service areas of any television broadcast station. Although a few viewers can receive direct broadcast television, most are believed to use the rebroadcast signals of translators; several translators are,

or will be, located within about 70 miles of the transmitter sites. If the radar were to affect the receiver portion of a translator, the interference would be transmitted to all the translator's users. Estimates made of the desired-to-radar signal power ratios that would appear at the translators' input terminals indicate that the radar's harmonics are not likely to produce interference in the operation of these translators. Similar estimates indicate that the radar would not interfere with those who are receiving the signals of the translators. Measurements in Maine near the ERS showed that at distances of 6 miles or more from the radar, the radar's harmonics that could potentially interfere with television were much weaker than predicted and were generally so weak that they were not detectable above the background radio noise.

Measurements and experience at the ERS suggested that harmonic interference to low-band VHF land mobile radio was unlikely there at distances greater than about 3 or 4 miles, and a similar prediction applies for the West Coast radar. Casual experience with high-band VHF handy-talkies (which were not on harmonic frequencies of the radar) showed that they could be used without interference close to the radar.

Although the VHF air-mobile communication frequencies may be susceptible to harmonic interference, there were no complaints during the period of more than a year that the ERS was operated.

Five VOR ground stations are within a little more than 100 miles of the two candidate transmitter study areas; aircraft using them would sometimes be illuminated by the OTH-B, and their VOR receivers are potentially susceptible to harmonic interference. Measurements at the ERS indicate that the interference may become severe when the aircraft are within about 30 miles of the front of the transmitter. These harmonic interference problems result from operation of the radar only on certain frequencies, which can be determined. The Air Force will cooperate with the Federal Aviation Administration (FAA) to determine whether interference exists, and joint efforts will be made to resolve any interference problems. Among the potential solutions are forbidding the radar to use the interfering subharmonic frequencies and changing the frequency of the VOR so that radar harmonics do not fall into its bandwidth.

Operation of the OTH-B radar is not expected to interfere with reception of broadcast radio beyond about 1 to 2 miles from the transmitter site.

The OTH-B radar would not be a threat to fuel-handling operations, nor would it constitute a threat to cardiac pacemaker owners outside the exclusion fence.

Safe separation distances for electroexplosive devices (EEDs) such as electrical blasting caps depend on the electrical conductivity of the soil. They cannot be determined until measurements of this parameter are made. Estimates based on available information indicate that the

storage or transport of EEDs would be safe outside the 4,800-ft exclusion fence if they were in metal containers. Otherwise, the safe distance would be about 3 to 5 miles in front of the transmitter or 0.3 to 0.5 miles behind it (depending on soil conductivity). The use or handling of blasting caps in preparation for blasting operations would be safe if it were done at least 6 miles and perhaps as far as 17 miles from the front of the transmitter, depending on soil conductivity. On an exposed mountain, the safe distance for using EEDs could be as far as about 25 miles. Planned measurements will yield better estimates of soil conductivity and safe separation distances. Some preliminary soil conductivity measurements suggest that the safe separation distance for the use or handling of EEDs is in the lower portion of the above range.

#### Biophysical Effects

Construction and operation of the West Coast OTH-B radar system would not result in any significant long-term biophysical impacts. In all cases, carefully planned and executed mitigating measures would reduce the likelihood of potential problems.

At either candidate transmitter study area (Mean Rock or Buffalo Flat), construction and operation would not adversely affect natural vegetation or wildlife resources. Although about 275 acres of vegetation would be cleared and the use of about 2,800 acres precluded or restricted, the vegetation is common in the region, and the habitat is of little value to the animal species that might be excluded. In the Mean Rock study area, arranging the three antennas with open corridors between them would minimize restrictions on the movement of mule deer and pronghorn antelope. The Buffalo Flat study area is bordered on the north by the Sand Dunes, an area of relatively high-value wildlife habitat that will be avoided.

Emissions from vehicles of the construction workers as well as from large construction equipment would be temporary and would not seriously affect local air quality. The emissions that would be generated by testing of the 15-MW standby power plant would be substantial relative to the one other industrial source in Christmas Valley, but would not cause noticeable degradation in local air quality. Particulate and sulfur oxide emissions are not expected to lead to violation of the maximum allowable PSD (Prevention of Significant Deterioration) increment in the nearby Wilderness Study Areas (WSAs).

Neither candidate transmitter study area has surface drainage patterns that would be affected by construction. A new water well would have negligible impact on groundwater supplies; wastewater disposal facilities at the site would be designed to comply with regulations intended to protect water quality. The groundwater table at Mean Rock is deep enough (20 to 40 ft below the surface) to avoid damage during construction. The groundwater table is shallower (4 to 7 ft below the surface) at Buffalo Flat and more susceptible to being affected by

construction. The small amount of solid waste that would be generated could be accommodated at the nearest disposal site. Portions of both candidate study areas are under lease for oil and gas exploration, but no exploration has occurred to date. Many archaeological and historical sites are found in Christmas Lake Valley and the surrounding lava plains. If sites are uncovered during construction of the transmitter, and they are eligible for the National Register of Historic Places, they will be avoided or excavated as a means of mitigating potential damage from construction.

At either candidate receiver study area in California's Modoc National Forest (Rimrock Lake and Lone Pine Butte), construction and operation of facilities would result in the removal of about 1,200 acres of vegetation from use by certain wildlife. Most of the vegetation that would be affected is common in the region. The Rimrock Lake study area contains vernal wetland and dry meadow vegetation types that should be avoided because they are relatively uncommon in the region. In particular, three localized populations of a rare plant were discovered during field surveys; they would be protected by buffer zones. In particular, three localized populations of a rare plant were discovered during field surveys; they would be protected by buffer zones. The Lone Pine Butte study area encompasses ponderosa pine forest and plantation areas, range improvement projects, productive big sagebrush areas, and manzanita chaparral that will be avoided to the extent possible. Depending on the exact location of the antennas, fall and winter range for mule deer and summer range (including a kidding area) for pronghorn antelope could be affected. Careful location of the antennas, vegetation enhancement, and caution by construction and operation personnel would minimize some potential adverse impacts to animals.

Emissions related to construction and operation of the OTH-B receiver site would represent a small increment above those generated by similar existing sources in Modoc County; no degradation of local air quality is anticipated. Construction noises may be annoying to visitors or wildlife, but they would be temporary and not louder than sounds associated with logging or certain other forest management activities.

The local aquifer is not expected to be stressed in meeting the relatively minor water requirements of operating personnel. Sewage treatment and disposal, as well as solid waste disposal, would be conducted in compliance with the guidelines of appropriate regulatory agencies. To reduce potential soil erosion and soil-bearing strength losses, facilities will be placed in the more level portions of the study areas, exposed areas will be reclaimed by seeding and cultivation, and perimeter drainage systems will be installed when necessary.

From a cultural resources point of view, the Rimrock Lake study area is considered to be in a high sensitivity area (i.e., a density of 10 or more archaeological sites per square mile is likely). The Lone Pine Butte area is considered a low sensitivity area (i.e., less than 10 archaeological sites per square mile are anticipated). If any sites are

determined to be eligible for the National Register, mitigation measures will be applied.

Neither construction nor operation would preclude mineral, oil and gas, or geothermal development activity in the Rimrock Lake study area. Lone Pine Butte contains an area that is under lease for oil and gas development. The OTH-B facilities would preclude the use of conventional exploration or production equipment within the site boundaries.

Preparing Kingsley Field for use as a support base would not affect any critical habitat. Nor would activities associated with support base operations have any adverse effects on important flora or fauna. Air pollutant emissions would be increased by substantial percentages, but significant degradation of air quality is not likely. Noise may be a temporary annoyance during construction. The water supply and sewage treatment systems have sufficient capacity to accommodate the needs of support base personnel. If both the support base and the operations center were to be located at Kingsley Field, all the activity might cause some shyer resident animals to leave the area. In general, however, the additional impacts do not make the cumulative effects significant.

The effects of building the operations center at one of the other candidate sites would be essentially the same and not significant. Although protected species occur on or near McChord, McClellan, and Mountain Home AFBs, none is likely to be significantly affected. The effect on air quality of the relatively minor emissions would be negligible. Construction noise would be a temporary nuisance. The water, wastewater, and solid waste services are adequate at all bases.

#### Socioeconomic Effects

Significant adverse socioeconomic effects are not anticipated at any of the four candidate operations center sites, the one candidate support base site, the two candidate transmitter study areas, or the two candidate receiver study areas.

Construction of the operations center and support base would occur in 1985 and 1986 and involve a maximum of 50 construction workers. The transmitter and receiver sites would be constructed in 1985 to 1987 and would involve a peak of 250 and 120 workers, respectively. The system would be operated by about 400 military and civilian personnel located at the operations center and another 370 located at the support facility. Of the latter group, 24 would be located at the transmitter site and 24 at the receiver site.

McChord AFB is located in the Seattle-Tacoma area, and McClellan AFB is north of Sacramento, California. These large urban areas have an extensive support infrastructure; each could easily accommodate the OTH-B mission. Because of the size of these regions, the economic benefits of the project would be relatively insignificant.

The Mountain Home AFB region, which includes Mountain Home (population 7,500) and Boise, Idaho (population 102,000), could also accommodate the mission. Air Force spending in the region would create about 110 jobs and reduce unemployment by 0.2%.

Kingsley Field is located in Klamath Falls, Oregon (population about 40,000). The city and surrounding suburbs would be able to meet the needs of the operations center and support base personnel. Air Force activities would induce about 120 secondary jobs in trade and services and reduce 1988 unemployment by 0.8%.

The two candidate transmitter study areas, Mean Rock and Buffalo Flat, are located primarily on Bureau of Land Management (BLM) land in Christmas Lake Valley, a few miles from the Christmas Valley townsite (estimated population 300). Socioeconomic change would be similar for the transmitter sited in either area. Construction activities would provide a temporary economic boost to many local businesses. Although the local region would be able to accommodate the work force, only a minimal infrastructure to provide construction services and supplies and therefore to capture related economic benefits exists. Operation of the transmitter is not expected to provide economic benefits to the Christmas Valley area. Grazing activities or recreational activities in the wilderness areas near the potential sites would not be affected significantly.

The two candidate receiver study areas, Rimrock Lake and Lone Pine Butte are contiguous lands in the Modoc National Forest in northern California. The study areas are about 50 miles southeast of Klamath Falls and 50 miles northwest of Alturas (population 3,000). Construction activities would provide temporary economic benefits to Klamath Falls, and some benefits might also accrue to the Alturas area. Operations are not expected to affect Alturas as most personnel probably would reside in Klamath Falls. In neither study area would construction of the receiver remove a significant portion of grazing land from the U.S. Forest Service inventory. The receiver would disturb grazing patterns at each site, however, and coordination with the Forest Service would be required during final site design to minimize impacts on grazing resources.

An alternative staffing plan now under consideration to use a higher proportion of civilians would reduce the total number of personnel required as well as the need for buildings at Kingsley Field to house military functions. These changes would reduce the capital and operating costs of the OTH-B system. They would also reduce the total economic benefits to the region, although this would be offset somewhat by increased civilian employment opportunities. The facilities and services in the cities and towns where OTH-B employees are likely to locate are adequate, and adverse socioeconomic impacts are not expected if this staffing alternative is implemented.



## Alternatives Considered

### No Action

The West Coast OTH-B radar system would not be constructed and operated on any combination of the candidate study areas and sites.

### Postpone Action

Construction and operation of the West Coast OTH-B system would be postponed to allow resolution of specific problems or issues related to OTH-B operation.

### Different Locations

No locations other than those identified as candidate study areas and sites were considered in this EIS.

### Conclusion

Construction and operation of the West Coast OTH-B radar system at any combination of the candidate study areas and sites would have no significant adverse environmental impacts. For particular sites, mitigation measures would be required to avoid or minimize certain impacts. Some minor environmental impacts would nevertheless result. Field measurements of soil conductivity will be made to permit better estimates of the safe separation distances for EEDs.

Table S-1

## SUMMARY OF ENVIRONMENTAL IMPACTS

Attribute	Location	Environmental Impacts
Radiofrequency radiation (RFR)	Transmitter site (Mean Rock or Buffalo Flat)	Average power densities outside the exclusion fence will be below $0.1 \text{ mW/cm}^2$ , which is at least 10 times smaller than the American National Standards Institute 1982 standard for both occupational and general public exposure.
RFR effects on plants and animals	Transmitter site	No significant effects.
Human biological effects of RFR	Transmitter site	None; there is no reliable scientific evidence to suggest that chronic exposure to the RFR levels outside the exclusion fence would be deleterious to the health of even the most susceptible members of the population.
Radio interference	Transmitter site	<p>International broadcast bands and Fixed-Service bands—No interference is expected; the radar is capable of detecting and avoiding occupied channels.</p> <p>Adjacent HF amateur bands—No adjacent-channel interference is expected because suppression of out-of-band energy is very good.</p> <p>Adjacent HF maritime-mobile and aeronautical-mobile bands and standard-frequency, search-and-rescue, and various emergency channels—No interference would be experienced because suppression of out-of-band energy is very good and guard-bands will be established.</p>

Table S-1 (Continued)

Attribute	Location	Environmental Impacts
Radio interference (cont.)	Transmitter site	VHF air-to-ground radio—Harmonics could interfere with aircraft within a few miles; mitigation measures are available.
		VHF omnirange (VOR) receivers in aircraft—Harmonics could interfere with aircraft within about 30 miles; mitigation measures could prevent this.
		Television reception—Local TV translators and other receivers are far enough away that they would not be affected by harmonics.
		Land mobile radio—VHF systems may be affected by radar harmonics within about 3 to 4 miles, but they can operate immediately adjacent to the antenna if their frequency is not a harmonic of the radar's; mitigation measures are available.
Hazard effects	Transmitter site	AM and FM (standard broadcast)—Interference could occur within about 2 miles of the radar; no residences are that close.
		Cardiac pacemakers—No hazardous areas outside the exclusion fence.
		Fuel-handling operations—No hazards.
		Electroexplosive devices (EEDs) in storage or transport in metal containers—No hazardous areas outside the exclusion fence.
		EEDs in storage or transport in nonmetallic containers—Safe separation distance may range from about 3 miles to about 5 miles; soil conductivity measurements will be made to define this distance.

Table S-1 (Continued)

Attribute	Location	Environmental Impacts
Hazard effects (cont.)	Transmitter site	EEDs in exposed condition--Safe separation distance may range from about 6 miles to about 17 miles, but as much as 25 miles on exposed mountain tops (possible only at Buffalo Flat); soil conductivity measurements will be made to define this distance.
Vegetation	Transmitter and receiver sites	Less than 25 acres of vegetation would be removed, 250 acres would be cleared for the groundscreen; no significant adverse impacts; mitigation measures would minimize impacts.
	Support base and operations center site	Several acres of vegetation removed; no significant adverse effects.
Wildlife	Transmitter site	Use of about 2,800 acres precluded or restricted; no significant adverse impacts; mitigation measures would minimize impacts.
	Receiver site	Use of about 1,200 acres including deer and pronghorn range precluded or restricted; mitigation measures to minimize impacts include siting away from high-value and sensitive habitats and separating the antenna sectors to provide movement corridors.
	Support base and operations center site	Several acres removed from use; no significant adverse impacts.
Air quality	Transmitter and receiver sites	No noticeable degradation of local air quality; for Buffalo Flat, PSD increments in the adjacent Wilderness Study Area are not likely to be exceeded.
	Kingsley Field (operations center, with or without support base	CO and NO <sub>x</sub> emissions would be increased by substantial percentages, but significant degradation of local air quality is not likely.

Table S-1 (Continued)

Attribute	Location	Environmental Impacts
Air quality (cont.)	McChord, McClellan, and Mountain Home AFBs (operations center site)	Relatively minor increases in emissions.
Noise	Transmitter site	No impacts.
	Receiver site	Possible temporary, minor impact on forest visitors and grazing animals.
	Support base and operations center site	Potential temporary annoyance during construction.
Hydrology	Transmitter site	Negligible effect from groundwater withdrawal; shallowness of water table at Buffalo Flat creates potential for contamination during construction.
	Receiver site	Negligible effect from groundwater withdrawal.
	Support base and operations center site	None; sufficient water supply available.
Water quality	Transmitter and receiver sites	Negligible; wastewater treatment facility to be constructed to minimize adverse impacts.
	Support base and operations center site	None; existing sewage system has adequate capacity.
Solid waste	Transmitter and receiver sites	None; adequate capacity at county disposal site; no hazardous waste.
	Support base and operations center site	None; minor addition to waste stream; no hazardous waste.
Geology and soils	Transmitter and receiver sites	Alteration of surface terrain, perhaps including shallow excavation or blasting would be necessary; no significant adverse impacts; mitigation measures would minimize impacts.

Table S-1 (Continued)

Attribute	Location	Environmental Impacts
Minerals	Transmitter and receiver sites	No significant impacts on oil and gas leases which exist at all sites except Rimrock Lake.
	Support base and operations center site	None; no leases or economic mineral deposits.
Employment	Transmitter site	Construction: 250 peak, 100 average over 33 months. Operation: 24 peak.
	Receiver site	Construction: 120 peak and average over 33 months. Operation: 24 peak.
	Support base	Construction: average 50 over 25 months. Operation: 370 primary, 60 secondary, 1987 unemployment reduced 0.4%.
	Operations center site	
	Kingsley Field (combined with support base)	Construction: 150 peak. Operation: 780 primary, 120 secondary; 1987 unemployment reduced 0.8%.
	McChord AFB	Construction: 125 peak. Operation: 400 primary, 150 secondary; insignificant effect on unemployment.
	McClellan AFB	Same as McChord, except 110 secondary jobs.
	Mountain Home AFB	Same as McClellan, except 1987 unemployment reduced 0.2%.
Population	Transmitter site	Construction: 100-200 increase in region. Operation: no change in Christmas Valley.
	Receiver site	Construction: temporary increase in Klamath Falls and possibly Alturas. Operation: no change in Alturas.

Table S-1 (Continued)

Attribute	Location	Environmental Impacts
Population (cont.)	Support base	870 persons increase, or average increased growth rate of 0.25% between 1982 and 1988.
	Operations center site	
	Kingsley Field (combined with support base)	1,820 persons increase, or average increased growth rate of 0.5% between 1982 and 1988.
	McChord AFB	930 persons increase; insignificant effect on growth rate.
	McClellan AFB	Same as McChord.
Income	Mountain Home AFB	930 persons increase; 4% increase in 1988 population of Elmore Co.
	Transmitter site	Construction: slight increase in Christmas Valley. Operation: negligible increase in Christmas Valley.
	Receiver site	Construction: slight increase in Modoc Co. Operation: negligible increase in Modoc Co.
	Support base	Construction: \$5 million (M) Operation: over \$7M/yr.
	Operations center site	
	Kingsley Field (combined with support base)	Construction: \$14M Operation: \$15M/yr.
	McChord AFB	Construction: \$7M Operation: \$9M/yr.
	McClellan AFB	Construction: \$8M Operation: \$9M/yr.
	Mountain Home AFB	Same as McClellan.

Table S-1 (Continued)

Attribute	Location	Environmental Impacts
Housing	Transmitter site	Construction: all Christmas Valley facilities would be filled, overflow possible. Operation: no demand for housing in Christmas Valley.
	Receiver site	Construction: adequate transient housing in area (including Klamath Falls and Alturas). Operation: no demand likely in Alturas.
	Support base	Construction: adequate transient housing. Operation: no demand for local housing.
	Operations center site	
	Kingsley Field (combined with support base)	Construction: adequate transient housing. Operation: adequate housing in region.
	McChord AFB	Same as Kingsley Field.
	McClellan AFB	Same as Kingsley Field.
Schools	Mountain Home AFB	Construction: adequate transient housing. Operation: adequate housing in region.
	Transmitter site	Construction: small expected demand could be accommodated by school planned for Christmas Valley. Operation: no demand in Christmas Valley expected.
	Receiver site	Construction: small expected demand could be accommodated by Modoc Co. schools. Operation: no demand for schools in Modoc Co. expected.
	Support base	Adequate capacity available.



Table S-1 (Continued)

Attribute	Location	Environmental Impacts
Schools (cont.)	Operations center site	
	Kingsley Field (combined with support base)	Adequate capacity available.
	McChord AFB	Crowding possible in one of 4 school districts that would serve OTH-B students; others have available capacity.
	McClellan AFB	Adequate available capacity.
	Mountain Home AFB	Adequate available capacity.
Community facilities and services	Transmitter site	General: existing facilities and services would not be overtaxed. Electricity: about 2 (Mean Rock) or 12 (Buffalo Flat) miles of 115 kV line would be built to site. Roads: about 9 or 11 miles of gravel roads may be improved.
	Receiver site	General: existing facilities and services would not be overtaxed. Electricity: about 4 (Rimrock Lake) to 5 (Lone Pine Butte) miles of 69 kV line would be built to site. Roads: about 10 or 18 miles of unimproved USFS roads may be improved; new roads would be built on site.
	Support base	Adequate facilities in area.
	Operations center site (all)	Adequate facilities in area.
Land use	Transmitter site	About 200 AUMs,* estimated value \$9,000 (Mean Rock) or 90 AUMs, \$4,000 (Buffalo Flat) would be removed; significant effects on current lessees not expected.

Table S-1 (Continued)

Attribute	Location	Environmental Impacts
Land use (cont.)	Receiver site Rimrock Lake	50 to 150 ADUs would be removed; significant effects on current USFS lessees not expected.
	Lone Pine Butte	Up to 240 ADUs would be removed; one lessee would need to purchase forage elsewhere; access to water would be impeded; realignment of pasture may be required; portion of USFS ponderosa pine plantation would be affected.
	Support base and operations center site	Facilities compatible with on- and off-base land uses.
Aesthetics	Transmitter site Mean Rock	Backscreen and towers would be visible from many locations in Christmas Valley; site has low BLM visual resource rating, and significant adverse effects on potential wilderness areas 4 and 6 miles away are not expected.
	Buffalo Flat	Backscreen and towers would be visible from many locations in Christmas Valley, including Sand Dunes Wilderness Study Area 1 mile north; site has low BLM visual resource rating, and presence of OTH-B is not expected to affect decision on potential classification of Sand Dunes as a wilderness area.
	Receiver site Rimrock Lake	Backscreen and towers would not be visible from main highway; area has low USFS visual resource ratings; adverse impacts are not anticipated.
	Lone Pine Butte	Backscreen and towers may be visible from 2 points along main highway; area has low USFS visual resource ratings; adverse impacts are not anticipated.

Table S-1 (Concluded)

Attribute	Location	Environmental Impacts
Aesthetics (cont.)	Support base and operations center site	No adverse impacts.
Cultural resources	Transmitter and receiver sites	No significant adverse impacts if mitigation measures taken.
	Support base and operations center site.	None.

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\*One animal unit month (AUM) is the amount of forage required to support a cow and a calf for one month.

## 1 INTRODUCTION

The Final EIS consists of two elements. Part I is the Draft EIS that was filed with the U.S. Environmental Protection Agency (EPA) and made available to the public in March 1983. Part II includes the transcripts of the public hearings, formal comments submitted to the Air Force, the Air Force responses to the comments, information developed after the issuance of the Draft EIS, and the errata for Part I. Also, the Summary from the Draft EIS has been reprinted in Part II with the corrections and changes arising from public review of the Draft EIS.

The Air Force has used all of the public and agency comments as a guide to complete the Final EIS. Each comment requiring a response, whether the comment is contained in the hearing transcript or in a separate submission, has been assigned a number in the margin. The Air Force responses consist of:

- (1) Changes to the text to accommodate additions or deletions of information. All such changes are recorded in the errata section of Part II.
- (2) Explanations to improve understanding or to state the basis of Air Force judgment.

The supplemental information in Part II includes biophysical information that was developed from field studies conducted after the Draft EIS was issued and socioeconomic information on alternative approaches to manning the OTH-B facilities.

The necessary authorizations will be obtained and mitigation measures will be developed jointly with the responsible state and federal agencies prior to construction of the OTH-B system.

Based on the environmental impact analysis, the Air Force has identified the Buffalo Flat study area as the technically and environmentally preferred location for the OTH-B transmitter and the Rimrock Lake study area as the technically and environmentally preferred location for the receiver. Because the expected environmental impacts of the operations center are not significant, the Air Force has not identified a preferred location.

## 2 PUBLIC HEARINGS

In June 1983, public hearings were held in Christmas Valley, Oregon; Klamath Falls, Oregon; and Mountain Home, Idaho. Transcripts of those hearings and written submittals received at the hearings follow.

The Air Force and its contractor responded to questions posed at the hearings. In cases where clarification or further information was judged necessary, additional responses were developed and included in Section 4. The comments for which responses have been prepared are numbered in the right hand margin of the transcript and attachments.

2.1 Transcript, Christmas Valley, Oregon

The hearing at Christmas Valley, Oregon commenced at 1900, 10 May 1983.

Mr Malchow: I would like to get this started as soon as we can, because I'm sure we are going to be here awhile. Most of you who were here before know who I am. I'm Gary Malchow. I' President of the Christmas Valley Chamber of Commerce, and we are here tonight for evaluation of the --- or for our opinion of the Environmental Impact Statement. Before we get the actual briefing underway and the hearing itself, I would like to introduce Congressman Bob Smith for a few words.

Congressman Smith: Thank you, Gary. Good evening everybody. Well, it's not quite sundown and you are all off your tractors; what's going on anyway? Everybody quit early tonight.

Spectator: It's raining.

Congressman Smith: Oh, it's raining; okay. I'm really pleased to be back here in Oregon and to have a chance to sit down with you and discuss a very important issue about the defense of this country; and also a very important issue about the environmental impact of what might occur in Christmas Valley. You know as I came in today from Washington D.C., I couldn't help

but be impressed by the fact that here is probably the most powerful nation in the history of the world, militarily, economically, except for agriculture; and that this government would move its people in defense and the Air Force to Christmas Valley, Oregon, to discuss with us our future and the impact of what may occur with a radar system which will be built for defensive purposes for our country.

There is only one other one in the country, and that is on the east coast at Bangor, Maine. There is probably only going to be one other, should this one be built, and that will be in the south, out towards the Gulf of Mexico. But the very fact that we are a government led by civilians and, yet, very strong militarily, and very concerned about people. So, I must tell you that I'm impressed that all of these gentlemen are here and I'm as interested as you are, and they are the technicians in this area and will be answering your questions, any of them and all of them, and I will be listening to the answers and your questions and I would be happy to discuss with you privately, or during this hearing and this meeting, at any time, any of these issues. Should you determine to do that communication other than by discussing it with me, I would be happy to receive a letter from you or a note, or a telephone call, or anything else. The way we settle things in this country is by these kinds of town hall meetings and by

this openness, and we are here to discuss a very sensitive and important issue for us, not only economically, but for the defense structure of our country.

I'm happy to be here and I'm looking forward to this meeting. Now, let me, if I may, introduce Colonel Strickland, who is going to preside over the remainder of the meeting and he says that he can keep us in line and I challenged him to do that. You know, we in Hardy and Lake County, we are kind of tough to keep in line, but he said he can do it. So we are going to turn it over to him. At this point, I would like to introduce you to Colonel Strickland, and it's your meeting, Colonel.

Colonel Strickland: Thank you. Ladies and gentlemen, before we get started, I have a very important administrative function I need to take care of. First the driver of a dark blue automobile, which has the license number GJY 163, you left your lights on. Maybe you would like to leave and turn them off and then you won't be mad at me at the end of the hearing.

My name is Don Strickland, and I'm the Chief Trial Judge of the Air Force. I have been assigned the responsibility of conducting this public hearing on the draft Environmental Impact Statement which has been filed by the Air Force with the Council on Environmental Quality. Contained in this draft is a description of the proposed over the horizon backscatter radar system,



known commonly as an OTH-B radar, and a detailed analysis of the probable impact the system might possibly have on the environment. The OTH-B is a very long range, all altitude aircraft detection and tracking system.

Now, my role in these proceedings is simply to conduct the hearing. My past experience has all been judicial in nature. Although I am not knowledgeable about the details of this project, we do have others here who are and can answer your questions intelligently. In fact, I had a place in my script here to say that, actually I'm just a country lawyer from North Carolina. However, I was advised not to say that because everyone would be reaching for their wallets. What I'm trying to get at, is that my experience is judicial and I'm just going to try and conduct an orderly hearing tonight.

I personally will not make any decision or offer any recommendations to the Secretary of the Air Force, and I personally have not participated in developing this project, nor have I rendered, nor will I render any legal advice with respect to the project.

The purpose of this public meeting is really two-fold. First, to provide you with the chance to receive information on the proposed action and to ask any questions that you might have. This affords the Air Force the opportunity to clarify its position

and it is strictly informational in nature. Secondly, it is to provide you an opportunity to present your views to the Secretary of the Air Force on the environmental impact on your community which would result from the OTH-B radar program. This permits the Air Force to receive representative samples of public opinion on the proposed action, and such comments may be either verbal or written.

A transcript of this hearing will be forwarded to the Office of the Secretary of the Air Force for use in preparing the final Environmental Impact Statement, and will be used in the decision making process. All oral statements and questions are being recorded verbatim by Mrs Ann Gilmore, a qualified court reporter. These proceedings are also being recorded on tape as a back-up.

Now any written statements will be attached to the transcribed record and forwarded to the Secretary of the Air Force for his consideration.

At this time, I wish to introduce Lieutenant Colonel Kary L. LaFors, who is the Deputy Program Manager for the OTH-B program. Lieutenant Colonel LaFors is the project officer for the Environmental Impact Statement, and very shortly will explain to you its nature and anticipated environmental impacts of the OTH-B radar system.

Now, the groundrules for this public hearing are few and

simple. As you entered, some of you who wished to make statements were asked to complete cards, printing your name, address, and the name of any organization you may be representing on this card. In addition, individuals who wish to receive copies of the transcript of this hearing and the final Environmental Impact Statement are requested to so designate on the card. A reasonable charge will be levied for individual copies of the transcript supplied to the public. The Environmental Impact Statement will be sent at no charge. If you missed an opportunity to obtain such a card upon entering, please raise your hand and at this time, one will be given to you. Is there anyone that needs a card?

Mr Raffa: Almost everybody. I neglected my duties.

Colonel Strickland: Okay, well, maybe you had better get to them now.

Mr Raffa: I've got them in the glove compartment of my car.

Colonel Strickland: What we will do is we will continue until we get the cards. I am anticipating these hearings will probably go on during the evening, and since we do have a court reporter taking this, we will probably take about a ten minute break every hour so everyone can rest a little bit and we can get

those cards out. As to oral statements, individuals will be allowed five minutes. Individuals representing and speaking on behalf of groups will be allowed ten minutes. After your name is called from the card, please stand up. Do we have a microphone? I don't believe we do, but if you just speak loud like I do, I think we can work it out. When you stand up to speak, I would please ask that you state your name, address, occupation or employer, and the name of any organization you may be speaking for. It would be very helpful for the news media and the court reporter, if you would spell out any names, addresses, or organizations that are not obvious.

Now, this hearing, to the best of my ability, is going to be very informal. I would like to emphasize that this is not a court, and cross-examination of the speakers or members of the Air Force would not be appropriate; nor would argumentative types of questions or questions which are, in fact, statements, be appropriate. Each of you who would like, will have ample opportunity to make a statement after the question and answer period. Now, if you wish to make a written statement and do not have it ready and desire to have it included in this hearing, you have until 10 June 1983 to do so. Where you should send any written statement that you might have, I will give you the address now, and it will be shown to you later; but it is Mr Roe Raffa, Headquarters ESD/SCU-4T; I'm

sure you can tell that's a typical military address. It is at Hanscom Air Force Base, Massachusetts 01731. That is about all of the preliminary remarks I have laying out the ground rules for this hearing. At that time, Lieutenant Colonel LaFors, the Project Officer, will brief you on the proposal. At that time, we will then have questions, which hopefully someone up here will be able to answer; not myself. Then we will give the audience an opportunity to make any statements that you wish to make. Everything that goes on here tonight will be recorded and will be attached to the Environmental Impact Statement for consideration by the Secretary of the Air Force and other officials in deciding upon this project. At this time, Kary, I'm going to turn it over to you.

LtCol LaFors: As he said, I'm the Deputy Program Director for the Over The Horizon Backscatter Radar Program Office and we are located out at Hanscom Air Force Base, which is outside of Boston. Before we get into the briefing, let me introduce some of the other people that are here with the team. First of all, there is Doctor Polson. Doctor Polson is an expert in radiation effects and is a consultant to SRI International, the firm that we hired to do the draft Environmental Impact Statement.

We also have Mr Rick McCluskey. Rick is from Hanscom also. He is with the Public Affairs office out there at the base. Mr

Roe Raffa is from the program office at Hanscom too, and he is in the engineering division. Mr Steve Pierce. Steve is from SRI International and was the project manager for the draft statement. Captain Ron Desheneaux was not able to make it from Tactical Air Command. Instead, we have Major Poli, who is with us and Tactical Air Command will be the operator of the system once we turn it over.

The way I thought I would go through this briefing is first just cover a little of the description of the radar system, talk about what it is we plan to do out here on the west coast, and then look at the environmental process. After the environmental process, we will take about a ten minute break and pass out cards for those of you who want to ask questions if there is anything you didn't understand through the briefing. If you will write those questions on the card and turn them into us during the break, we will pass those out amongst the experts here and after the break answer those questions. Then, as Colonel Strickland said, after we have the question and answer period, then we will open the floor up to anyone who wants just to make a statement.

What is it that this OTH radar is supposed to do? Provide early warning of aircraft approaching the North American Continent. Pretty simple, but a little harder to do. These next two charts I wanted to use to explain the difference between our radar

system and a line of sight radar system. A line of sight radar system, by its definition, isn't able to accommodate for the curvature of the earth. Consequently, if there is aircraft wanting to fly in low, they can probably get close as about thirty-five miles if they stay below five hundred feet. On the other hand, the over the horizon radar system sends a signal --- could you catch the lights back there? (The lights were turned off.) Can you see that very well?

Our system sends a signal upwards to the ionosphere. The ionosphere is about fifty to two hundred and fifty miles above the earth. The ionosphere then refracts these signals downwards, and then we really become a down looking radar in the jargon that we use. So that those transmissions come all the way down to the earth.

Let me explain the components of our system. There are really four parts to an OTH radar. The first is the transmit antenna, the transmitters. The second is the receive antenna. The third really is an operations center; and the fourth is the ionosphere. As you may know, the ionosphere is a very dynamic piece of the atmosphere and it is hard to accommodate the signals, the transmission of the signals and sort those out from noise. But let me describe what happens.

The transmit antenna sends the signal up and then comes down.

If it finds an object, a target, an aircraft, some of that energy will then be reflected back again up to the ionosphere and back to the receive antenna. At the receive site, there is computer equipment to process that data and transmit it to an operations center where people are there with consoles, radar scopes, if you will, monitoring the information.

The range of our system; the inside range is five hundred nautical miles and the outside range is about eighteen hundred nautical miles. So that you can see that we provide coverage over a very broad area.

This is not a new system. We operated an experimental system in Maine. That project began in 1976. The experimental system was completed in '80, and then we ran a test program for one year, from '80 to '81. That test program was successful. It was then briefed to the Secretary of the Air Force and in the beginning of 1982, he asked us to proceed expeditiously to do an east coast and a west coast system.

These pictures are of the experimental site in Maine and particularly of the transmit site. A couple of key features; these are different views of the transmit antenna. You can see that they are quite long. This is the building here that houses the transmit equipment. The field that is out in front of the transmitters, in the case of the experimental system, was a thousand



feet. For the operational system, we find that we only need to have this ground screen about seven hundred and fifty feet in front of the antenna.

This next one is then a picture of the receive site of the experimental system; also in Maine. You can see it looks like a long row of telephone poles. In fact, that is about what that is. You can't see so well, the small receive antennas that are in front of those. Again, a ground screen, in that case a thousand feet in front; and the long line of telephone poles are about seventy feet high and that provides a back screen for the antenna.

In the experimental system, we had the operations center located with the receive site. In the case of the operational systems on both the east coast and the west coast sites, the operations center will be separate from the receive site. You will see more about that when I look at the candidate sites for the west coast.

These then are the scopes that the operators use in the operations center. This system is an HF system. We broadcast the signals in ranges of five to twenty-eight megahertz. So we are an HF or high frequency system. I think it is probably worth noting that the early radars that we started to develop in the beginning of World War II were also HF radars. The reason we are now able to come up with a system like this is because we have

two things. One is, we have a better understanding of the ionosphere and how that works so that we can read the signals back and transmit on proper frequencies and get a reflection through that dynamic ionosphere. The other reason we are able to run a system like this is because we have better computing power. The signals that come back from any of those aircraft are quite small and we need to do a lot of processing to determine what those signals are as compared to noise. So there is a fair amount of computer processing that goes on in a real-time basis. That does a couple of things for us. It allows us not only to detect targets, but we can in near real time differentiate between those which are aircraft that we would know about and find in the area and those which we don't know about, that did not file flight plans.

This chart illustrates the kind of coverage that the OTH radar will provide when it is complete. This IOS is the Initial Operating Sector. Being in the Air Force, we have to have some abbreviations and I hope you will bear with me. So that is with Sector One. We are on time track with that now with our prime contractor, General Electric in Syracuse, New York. We started that contract last June. That first piece is to be completed in 1986. We will be awarding, or exercising options for Sectors Two and Three late this year, and those are also to be completed in 1986.

In the beginning of '85, we would expect to award the contract for the west coast. That would be for all three sectors. That system would be completed then one year after the east coast or 1987. The dotted line that we use here for the south looking, what we refer to as the south looking system, is because we do not now have direction to build that site. We have been asked to plan and budget forthat and in our planning, we have identified a start one year after the west coast, and completion one year after the west coast is completed, by 1988.

Getting over here to the west coast, and if you can see this you will recognize it, but from the back I'm sure you can't read it. What we have is Christmas Valley up here, and the two candidate transmit sites. One is Buffalo Flat which is nearly straight east and for those of you that know the 800 KVA power line, it's just on the east side of that power line, just south of the sand dunes that are out there. The Mean Rock site is to the north; these being the sand dunes here, and to the north of that. It, too, is to the east side of that 800 or 830 KV power line.

The two candidate sites for the receive antenna are down in northeastern California. This is the Modoc Forest; one is Rim Rock Lake and the other is Lone Pine Butte. There is only one candidate site for the support center, and I'll talk a little bit

more about the support center later; but that is at Kingsley Field. The next chart then shows the four candidate sites for the operations center. You might be able to read this, but it is Mountain Home Air Force Base outside of Boise, at McChord Air Force Base in Tacoma, Washington, again Kingsley Field at Klamath Falls, and McClellan Air Force Base near Sacramento, California.

Getting more specific then as to the kinds of activities that we would expect to have at the transmit site; we would be doing these things. Let me explain one thing, too. You will notice in this briefing we are talking about twenty-eight hundred acres. For those of you who were here last fall when we briefed, we were at that time talking about a thousand acres for the transmit site. The difference really comes from two factors. One is, is that we wanted to include in the Environmental Impact Statement, the largest number that we thought was possible so that we would accommodate any consideration of that large number so that we wouldn't have to go back and re-do in the impact statement if we were using more. We expect to use less than the twenty-eight hundred acres. The other factor is that we found that the soil conductivity here in the valley is high, and we need to run the exclusion fence out further than we originally anticipated, so that adds some acreage too.

I might say, at this point, where you see some manpower

numbers in the statement, and also in this briefing, those too are at the high end of the scale, and not necessarily what we are planning to date.

So, what are we doing at the transmit site? We have three antennas; one facing to the northwest, one to straight west, and one to the southwest. We would fence in an exclusion fence around those antennas. We would also install a fifteen megawatt power plant. The purpose of that power plant is back-up power, as the primary power would be supplied through commercial power lines. We would then erect these antennas. The antenna itself is thirty-seven hundred feet long and it ranges from forty to one hundred and forty feet high. We have what we call ionospheric sounders that go on each end of that antenna, which make it about forty-two hundred feet long; about a mile. Obviously, we have to put some access roads into those sites. There will be equipment buildings at each of those antenna sites; possibly construct a separate support building for the people that are going to be on site.

The concept for operating the site is that the support people would be housed at Klamath Falls at Kingsley Field. We would then have, on a three day rotational basis, twenty-four people come out on a three day basis and man the transmit site. That would include maintenance, security police, primarily to be at those sites; to be there on a twelve hour shift; twelve hours

on, twelve hours off; spend their three days, go back to Kingsley Field, and another crew would come. So, it is a twenty-four hour operational system.

It is very much the same at the receive site; less acres, fewer acres. Lower power requirement, just five megawatts of power; again back-up power. The antennas at the receive site are a little bit longer, almost a mile each; access roads, buildings, and the same concept for manning as at the receive site.

The support center. The support center at Klamath Falls; these are the numbers that are in the impact statement. We are really expecting to see about two hundred and fifty to three hundred people there; those are maintenance people and the security police kinds of people that would be coming out on the three day shifts to the transmit and receive sites.

The operations center. Again, there are the four candidate sites. They would have one building, a 32,000 square foot building at one of those sites, and also an 18,000 square foot building for software support facility. What that means is, that they have a lot of computer equipment in there and if they needed to change any of the software they would be able to develop that change, run it through a system before they put it on the air, put it on operation. There we would really expect to see about three hundred to three hundred and fifty people manning the operations center.

These then are some of the things that we addressed in the Environmental Impact Statement. I don't want to go through and talk about all of those, but there are a few that I will mention that have particular interest here at Christmas Valley. The first is the radio frequency radiation, RFR. I'm used to using abbreviations.

When we started the project, the standard for the frequency requirements for exposure to humans was ten milliwatts. There has been a recent revision of that standard down to one milliwatt. However, in our system, we would expect it to have, on a worse case basis, not more than one-tenth of that, or one-tenth of a milliwatt exposure at the security fence line.

Radio interference. You've probably noticed, or some of you may have noticed, that there is the possibility that we could interfere with a VOR. The one thing that we would do, if in fact the system did interfere with the local VOR, we would find some way to make a change to avoid that interference.

Employment. As we said when we were here last fall, and it still is the case, we would expect the system, in terms of providing any employment to the Christmas Valley area, to be limited to about the two to two and a half years of the construction phase. That phase really being '86 to '87; that it would probably not provide any significant amount of employment opportunities to

the valley during the operational phase. Lastly, let me just mention the cultural resources. As you know, there are a lot of archeological sites in the area. If we found that we were placing the antennas in some of those sites, we would do one of two things. Either avoid them if we could, and if not, we would hire an archeological firm to do a study in conjunction with the state archeologists and BLM people to document any of those sites.

This shows you a little bit of the schedule. We released the draft EIS on the 22nd of April; the close-out date for comments on the draft is the 10th of June. After that --- after we receive those comments, we will prepare replies and in the next month we will have those replies reviewed up through the Air Force, print those, release the final in about September. Then there is a mandatory thirty day waiting period after that before it is declared complete. The events that happen after this; in early '84, we would expect to see a decision on which of these candidate sites would be selected and in '84 we would be acquiring the land to put the site on from the BLM people and the Forest Service down in California. Then in '85, awarding the contract for the west coast, with completion scheduled for '87.

That completes my presentation. This is just another pictorial of the coverage that we provide. The one last slide that we want to show you is Mr Raffa's address.



Mr Raffa: I don't think I'll put that up there.

LtCol LaFors: He doesn't mean that; he'd love to hear from you. So, what we will do is that we will take our ten minute break. We have some cards up here and some pencils, so those of you who have questions, please come forward, write those down, and hand those to us.

Mr Raffa: The zip code is 31, not 30; Mr McCluskey informs me.

LtCol LaFors: 01730 is really supposed to be 01731. So, thank you for your attention. We will take a ten minute break and then reconvene to do the question and answer period.

(The hearing recessed at 1935 and reconvened at 1947.)

Congressman Smith: Can we have your attention please? We are going to go right on with the questions and answers. Thank you. Go ahead, Colonel.

Col Strickland: That's why he's a Congressman. Kary, do you want to field the first question?

LtCol LaFors: Okay. We have about a dozen, and if we need

to clarify a question as we answer it, go ahead and stand up and make sure that we answered the question that you were trying to ask. There were a number on the technical aspects of the radar, so let me have Mr Raffa go ahead and start on a few of those.

Mr Raffa: Am I supposed to give names? This is from Mr Miner, and he wanted a comment regarding the airport and the effects on aviation. The two proposed sites, one at Buffalo Flat, the other at Mean Rock, are what, about nineteen miles in one case and about twenty-five miles in the other case, from the airport. If I understand what really is meant by this, I think the concern would be on communications, aircraft communications, Mr Miner?

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Mr Miner: Yes, that's right.

Mr Raffa: Okay. Most aircraft receivers have a narrow enough band width capability so that there wouldn't be any experience with interference. The experience we had at the experimental site in Maine, showed that there wasn't any. However, if there was, then we would take whatever mitigation measures were necessary to solve the problem. We don't anticipate any problem, but should one come up, guaranteed we will do something meaningful. I can't answer that any better than that because I don't know what kind of problems are likely to occur. My best answer is that we had none

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in Maine where we operated for about sixteen months.

Mr Miner: Thank you.

Mr Raffa: I have to put on my glasses; I'm at the awkward age. How far is Air Force planning on building access roads; is the county roads paved or graveled; is Air Force willing to help county update or improve county road access? That's not fair; that's four questions, but I'll answer the best I can. The Air Force would put in whatever necessary roads there are and we would cooperate and work within the rules of your area. The general rule would be that we would put in improved, paved --- not paved, but rather good gravel road unless it was necessary, unless your rules specified we put in paved; then we would put in paved. The heavy equipment would get in there during the construction phase with no problem. Thereafter, the traffic anticipated on the road does not normally warrant a paved road. So we wouldn't normally put in a paved road. If the rules require that we do so, we will. Does that answer all four questions? Okay, moving to the county roads. I don't know where the county roads are. There aren't any county roads within sight from the Mean Rock place that I could see, but we would have to link up to a county road, yes. Would we improve a county road, if necessary? If necessary, yes, I think we would. We would have to do whatever we would have to

do in order to guarantee the people could get in and out, especially for medical emergencies. Does that answer the question satisfactorily, Mr Kerr?

Mr Kerr: Yes, it did. There was one other question this has brought up. How about after you get them made, who is going to do the maintenance?

Mr Raffa: We would maintain any of the roads that are on our property, and we would probably have some sort of a cooperative agreement with the county to maintain the rest. Again, until the final engineering work is completed, I don't really have any definitive answers. This has been our experience in Maine. That is the way we operated there and it seemed to work very successfully.

Mr Turnball, did you get the copy of the Environmental Statement that I sent you, by the way?

Mr Turnball: Yes, I did.

Mr Raffa: Good. Okay, restricted areas at the site; how big? The amount of area that would be fenced in will be determined on the basis of a report that I expect to get next week. This report will show us just how conductive the ground is out there. We've had some measurements made over the last two weeks. The worst possible case would be something under forty-eight hundred

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from the location of the antennas. In other words, the antenna would be as my arm is, and we would fence about five hundred feet to the rear, five hundred feet to either side, and anywhere from say twenty-five hundred to forty-eight hundred feet forward. That would guarantee, as Colonel LaFors said, that we would have one-tenth of the standard, or better. So that is what we would fence to.

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Spectator: What kind of relation to aircraft?

Mr Raffa: Okay, on aircraft. In the environmental statement, there are some calculations that show what the instantaneous power and so forth would be. What we did in Maine, we would probably do again here, and that is, request the FAA to issue what is called a NOTAM, a notice to airmen. That would request that they issue a report to anybody who flies by that they should stay about twenty-five hundred feet to either side of the antennas, and about a mile slant range, that is going up at an angle, from the antenna. That is, stay out of that area and there is no problems to your equipment. The problem we worry about a little more than that is navigation equipment, and there again, as again Colonel LaFors has said, we will work with the FAA to solve any problems that may come up. At the present time, we don't know of any problems. Does that answer that?

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LtCol LaFors: There is no restricted airspace. There is only the NOTAM to avoid about, maybe at the most, two cubic miles in front of each of the transmit antennas.

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Mr Raffa: I think it's a little less than that. Betty Morehouse; will you purchase power for the installation from Mid-State Electric Cooperative? I don't know. The engineering groups that will be studying the problem will decide which is the cheapest way to bring power in and wherever that is we will buy power from that company. Obviously, if we go to Mean Rock, it would probably be a different company than if we went out to the Buffalo Flat area, I think. Steve?

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Mr Pierce: No.

Mr Raffa: Steve is better equipped to answer that one.

Mr Pierce: Currently, we are, as Roe indicated, the engineering study is going on right now looking at the power availability, power reliability, and all of these questions; and presently the most convenient power would be provided by Mid-State Electric. Certainly, that is not a certainty at this time.

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Mr Raffa: Until the engineering studies; you know, this is a couple of years away, and until we complete all of those, there are really any, you know, hard and fast, ironclad guarantees

that we will buy from Mid-State or anybody else. This is for Kent Butler. Of the United States Air Force personnel, how many are security; and the second part of that is, of this number how many could be civil servant or contract? The number of people for security would be; of the twenty-four people that Colonel LaFors showed, I think it was; there would be one person on guard in the guard shack, two or three on roving patrol; so you would double that number, and it would be six to eight people would be providing the security for the three antenna sites. Now, of those, how many of those could be civil servants or how many of those could be contract? That would be determined by the command that would operate the system, the Tactical Air Command. I have no immediate answer to that.

LtCol LaFors: The current plan is that it would be blue suit security; the current planning that exists today.

Spectator: What does that mean?

LtCol LaFors: Another colloquialism, I'm sorry. Uniformed military.

Mr Raffa: Blue suit, as in blue suit.

LtCol LaFors: Civil servants call us blue suiters, so we know that is who we are.

Mr Raffa: Betty Morehouse; I sent you an environmental statement too, I remember.

Mrs Morehouse: No.

Mr Raffa: You didn't get it?

Mrs Morehouse: No, I didn't request one.

Mr Raffa: I sent you one.

Mrs Morehouse: No.

Mr Raffa: I'll send you one anyway.

LtCol LaFors: Do you want him to send you another one?

Mr Raffa: It's only four dollars and some change for first class. Compared to the proposed installations, how large was the experimental installation and how much radiation did it release? That word radiation, I'll leave to my fellow here, Peter, Doctor Polson. How large was the installation in Maine? We ran about four hundred and thirty-eight acres enclosed in the fence. We would probably enclose more space here in Maine --- here in --- what state is this? Here in Oregon. I rehearsed how to say Oregon properly. We would enclose a good deal more than that for two reasons. One, the standard has been changed since the



Maine installation was put in, and we want to be on the side of the angels when it comes to that. Insofar as radiation, that is a word that I've been trying to get people to change to some other word because --- well, Peter?

Dr Polson: Yes, I take it from the wording, how much did it release? It makes it sound like this is a nuclear reactor or something that is different from what it actually is. These antennas on the OTH-B transmitter site will be broadcasting radio frequency radiation which is analogous to television radiation or radios, but has nothing whatsoever to do with what is called ionizing radiation from reactors, atomic bombs, or anything else like that. So, does that answer the question satisfactorily; that it would be releasing any radiation of that nature?

Mrs Morehouse: No. I just wondered how large it was in comparison to these proposed. Was the installation as large? Did it use as much power?

Mr Raffa: Okay, it's back to me then. Each of the installations in Maine; well, we had one installation in Maine. That had twelve, what we call 100 KW, hundred kilowatt transmitters. Each of the antennas here would have twelve hundred kilowatt transmitters, identical. The antenna is larger because we have a larger frequency that we are going to cover with the system. But

the power output would be exactly the same. The antennas themselves are about the same, so that I think there are one or two hams in the audience here, the ERP would be --- the effective radiated power, would be just about the same as it was before.

Mrs Morehouse: Now, in your presentation you talked about milliwatts, is that what you called the radiation that was released at the fence site?

Mr Raffa: Oh, no. The milliwatts per square centimeter; that is a measure used to determine the field strength of the energy which has been radiated, both by what is called groundwave and skywave. It is measured in one thousandth of a watt per square centimeter. That is the amount of energy impinging on a surface about --- well, one square centimeter; one thousandth of a watt. That is what it is measured in.

Mrs Morehouse: Just to keep the record straight, you referred to it as radiation, that is why I used that term.

Mr Raffa: Yes, that's the correct term. We are being radiated right now by those fluorescent bulbs, by the way. It is a straight engineering term. It simply means electromagnetic emissions, of whatever sort or nature.

Mrs Morehouse: But you didn't answer my original question.

How much radiation did it emit, the experimental station?

Mr Raffa: Okay. The amount of energy that was used at that site ran between about, sixty-seven --- I'm doing mental arithmetic here; about one and a half megawatts all the way up to about three megawatts. The radar, for economy reasons, we have a power programming feature. We cut back on power just to the level necessary to get out to where we want to be and back. So, we cut back. There is no fixed amount. The maximum we can radiate is 1.2 megawatts.

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Mrs Morehouse: Is that in relation to the megawatts that you intend to use, power-wise?

Mr Raffa: The amount of power it takes to get 1.2 megawatts radiated would be something like two and a half times that plus some inefficiencies. Most of that goes up in heat, some of it goes out the antenna.

Mrs Morehouse: In your environmental impact statement, you referred to nine megawatts.

Mr Raffa: That's correct. That is the --- again, in the environmental statement, we have to be sure that we use the absolute worst case numbers. That way we can't ever be accused of saying things and sort of creeping up on you; you know, just get

the camel's nose in the tent. We have to give you the worst possible case. We actually intend to use, or probably would use, less than; for example, the twenty-eight hundred acres that Colonel LaFors mentioned. We would use less than that probably; very probably. I can see what your concerns are. You are concerned about that word radiation, which is kind of a bugaboo.

Mrs Morehouse: How dangerous is this kind of radiation?

Mr Raffa: That one has been determined by Doctor Polson and others. Since we have this exclusion fence which would prevent people from getting any closer than a level of one tenth of one milliwatt per square centimeter, and since we are allowed up to, at five megawatts --- at five megahertz, I'll get my engineering terms straight. You can see that we have a very ample safety margin built in above and beyond what the experts tell us is absolutely safe. The old standard was a lot higher than that. It has dropped, and we are going to be a lot lower than even the drop. We're pretty sure because we have our own people inside those buildings and working in those areas. Does that take care of the question? I think I have two more and then we'll go to somebody else. Has the United States Air Force purchased any --- or the government, land in this area for the construction? No. We can't do anything and won't do anything until after, not only this

environmental procedure is complete, because we forward all of your comments, all of the concerns that people have, to the people who will make the ultimate decision. Until after the decisions are made, there is no place and no way we can buy anything with anything. So, the answer to that is an unequivocal --- one of my few unequivocal --- no, we haven't bought any land. Second question; how does a person go about applying for employment for construction of the OTH-B set-up? The General Electric Company will build the system when it is built here. They will hire firms in the area; that has, at least, been their practice. So, the best bet would be when the General Electric Company is awarded the contract to apply to them, or one of the, whoever they hire as a contractor. The Air Force itself does not do any hiring for the construction of the project.

I've got more. Explain your basis on groundwave radiation in reference to ERP. I knew I saw that someplace. ERP is effective radiated power, and that's a formula which includes the output, the antenna gain, and a lot of other factors. The example was from the antenna to a seventy-five mile radius. I don't think I understand the question.

Spectator: Well, in other words, you're talking about one milliwatt of power radiation at your fence radius. I just don't understand that at all; not at your estimated ERP; it's got to be

astronomical, and your groundwaves has to be bodacious.

Mr Raffa: We have a fairly efficient --- we have about a twenty-two DBI gain on the antenna. We use a ground screen which will go out about seven hundred and fifty feet, and then, as you know, I'm sure, the drop-off after you leave the ground screen would be something like about ten to twenty DB per octave and we're going out to about forty-eight hundred feet max. At that, I would think that even with the high level of conductance, certainly at Buffalo Flat, not so much as Mean Rock; even at that, I think at something like four thousand feet, our calculations show the groundwave would have dropped to a good deal less than a tenth of a watt. Does that answer your question? 61

Dr Polson: It's covered, I think, in one of the appendices to the Environmental Impact Statement. If you haven't seen that, it might be worth looking for the appendix.

Spectator: Well, I kind of represent a group of hams and we've been faced with what we call the "Russian Woodpecker."

Dr Polson: Okay.

Spectator: You know the over the horizon, and that has caused tremendous interference throughout the world.

Mr Raffa: Remember that that is a pulse system and we're continuous wave. Secondly, we have a fairly narrow band width; we're talking something like five, ten, twenty, and forty kilohertz. They operate at about two hundred and fifty. Thirdly, they couldn't care less what frequencies they use and we are restricted to the HF and primarily would be operating in a fixed portion of the HF. We are not on anyham band, maritime, mobile, or any of those others. We have guard bands around those.

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Spectator: You're going to be good guys, huh?

Mr Raffa: We are good guys. We ran for sixteen months in Maine. We had, I think, a dozen complaints of interference, one of them from the Air Force themselves. None of them turned out to be ours. We have logs where we compared frequency; most of the time we weren't operating and we weren't on the frequency. So we have been good guys. Okay, the last one; blasting caps, I think it says. Impact statement said twenty-five miles; Lake County has two rock pits within this limit. Would you please note if there has been any change in the affected area? As I think I have mentioned --- yeah, I have mentioned; we had a crew from Keesler Air Force Base out here for about two weeks. They just left about a week ago, wasn't it. They spent two weeks, both at Mean Rock and at Buffalo Flat. They made what we call ground conductance

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measurements. They measured the ability of the earth to take the signal and carry it out. The twenty-five miles; again in the environmental statement, we tried to be as pessimistic as we possibly can. Now, based on the preliminary report I got over the phone from those fellows, if we go to Mean Rock that distance might be about five or six miles. If we go to Buffalo Flat, it still might be out, I don't know. I would have to look at the report. But it probably would be less than twenty-five; I guarantee it will be less than twenty-five. How much less, I don't know. We will have to measure that. Before we operate, we will make final measurements and these will be reported to whoever is interested. I think George Tran and others here are kind of interested in that area; certainly, the BLM is interested in that area and we will be working with them. When we get the final engineering done, reports will be made to anybody that is interested. Does that answer that? I think that is all for me.

Mr Pierce: I have a couple of questions. Another road question here concerning, do you plan to ferry the manning personnel by road or air? The roads are very hazardous in the winter months; and the third question, would local housing be a remote possibility? It would be a remote possibility by the way. The current plan right now is to bus the people from Kingsley, so that one shift will be



coming out, staying here for three days, then essentially they will be relieved by another shift. Most likely, they would be bussed. These plans are, of course, preliminary plans. The system is going to go into operation several years from now, and plans may change. But that is the way it stands right now. So there isn't really an anticipated need to house the people locally.

A related question is one concerning, how many people will come and go during, first the design phase, secondly the construction phase, and finally during operation? During the design phase, there will be small groups coming and going like, as Roe mentioned, the group from Keesler that came in and did some measurements. I think GE is going to be sending some people out in about a month. Fairly nominal types of field activity in terms of measurement engineering studies and that type of thing. During the construction phase, as was mentioned, the construction will run from 1985 on for about thirty-three months, and it is expected that the construction crew would peak at about two hundred and fifty people about halfway out. It's kind of a bell shaped curve in terms of the numbers of people that would be on the site over that period of time, with the peak developing at about two hundred and fifty; and probably an average over that whole time is something less than a hundred. One would anticipate that there will be various people coming and going during that period of time. That is, one would not expect

people to come out here for the entire thirty-three month period. That is, a subcontractor would probably come out for several months to do the preliminary site preparation; another subcontractor would probably come out to do concrete work, or to lay the groundscreen, and then they will leave. So, there would be this kind of constant flow of people going out to the site. As far as where those people might reside, it really is dependent upon who the contractor is and how the contractor operates. We've seen, in these kinds of operations, where contractors sometimes bring in as many of his own people as he can; other times, the contractor tries to hire as many people locally. Like I say, it really depends upon the practices of the contractor and what contractor might be successful in their bid.

Finally, the number of people during the operational phase, I think we've probably covered that already. Just those twenty-four people that would be on site, and they would be bussed in and out.

LtCol LaFors: I have two questions that I'll answer, or try to answer, both from Mr Boyer. The first one is, aircraft, isn't it obsolete and unlikely that aircraft would be the main consideration? Two part answer to that. One is that the Russians have aircraft that can reach the continental United States and they are developing more. They have a Bear, which we call the Bear, which

is a turboprop, four turboprop engine plane, which is the vintage of our B-52. They have two other aircraft that are in development that we expect them to build in significant numbers that are like our B-1.

Mr Boyer: Could I comment on the same question?

LtCol LaFors: Yes, let me make one other part of the answer and then catch me if I don't get it. It is also true that they are developing Cruise missiles, and that these aircraft will be capable of carrying Cruise missiles. Our system can detect Cruise missiles.

Mr Boyer: It can detect missiles.

LtCol LaFors: It can detect missiles, yes. Air breathing missiles, as opposed to ICBMs. There are other radar systems; they tend to be microwave systems, BMUSE, if you've heard of that, Ballistic Missile Early Warning System, that are specifically designed to detect incoming Intercontinental Ballistic Missiles. The next question then is, why was the Maine indirect impact not addressed? Namely, this project will turn this area into a strategic target; downwind areas for fallout should be identified since people there could be in a similar position as Salt Lake City residents were for the MX in Nevada. The second

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part of that, is the system to provide advance warning for missiles? I think maybe I've answered that. How much time for move before what for? In terms of this system becoming a target for nuclear weapons from the Russians, I guess I have a couple parts to the answer to that. One is, that we don't know what the Russians' targets are. We don't have any more information on that than when we were here last time. So, it is the Air Force feeling that this will not provide a target for Russian nuclear weapons. This system is a defensive weapon --- excuse me, this is a defensive system; it's a strategic system. But it is a soft, if you will, a soft system as opposed to a system that is hardened like MX was planned to be to withstand some kind of nuclear detonation. So, the Air Force does not consider it likely that the system will increase the area as a target.

Mr Boyer: Will that question be explored and addressed in the EIS? It currently is not addressed, and since it is speculative as to whether there would be a missile coming into this spot, a scenario of what the consequences would be is surely appropriate to the EIS.

LtCol LaFors: We have your comment. We will look at that. I suspect that the EIS would not address that, but obviously we will have to address your comment to see whether we really should or not. That will be addressed. We have no other questions. Are

there any questions that you have thought of while we have been answering these that you want to ask? If there are, we will take them now, and after that, we will take about a five minute break and then we will take any statements that anybody wants to make.

Spectator: Could you pinpoint Mean Rock from, say, Wardell Wells; how far?

LtCol LaFors: I'm not sure where Wardell Wells is. Steve likes to go out to Mean Rock a lot; maybe he can describe it better than I.

Mr Pierce: It's very mean out there, truly.

Spectator: I can do that for her.

Mr Pierce: Okay, fine.

Spectator: It's almost due west; say two miles.

Spectator: Due west of Wardell Wells?

Mr Pierce: It's a little northwest actually.

Spectator: You know where I live?

Spectator: Yeah, I know where you live.

Mr Pierce: It's northwest of Wardell Wells.

Spectator: Northwest?

Mr Pierce: And the site that we are looking at is BLM land. If you live on BLM land, maybe you are near the site.

Spectator: We're about a mile and a half, maybe two miles just due west of there. That's why I was kind of mixed up.

Mr Pierce: I will go through my maps here and define it a little better for you, so you can see where we mean.

LtCol LaFors: It's on the east side of that power line.

Spectator: Well, we're on the east side of the power lines and we've never heard of this Mean Rock.

LtCol LaFors: A BLM term. Yes, sir.

Spectator: On your opening display you showed the scope of the area that this radar system picked up, and you indicated that you could see low flying aircraft within thirty-five miles. Yet, further into your spiel, talking about the comeback from the ionosphere, your parameter was between five hundred and eighteen hundred miles.

LtCol LaFors: I'm afraid I confused you. What I was trying to do with the first slide; I was trying to differentiate

between a line of sight radar, a microwave radar, if you will; which we are not, and our radar. The first slide was the microwave radar, which is the kind of radar that we have around the continental United States now. There are about forty-six such radars around the perimeter of the United States. That is the capability of those radars; as compared to this OTH radar, which goes up and has that inside range of five hundred nautical miles.

Spectator: But still, are you saying that that is your --- five hundred nautical miles ---

LtCol LaFors: That is our inside range. So, we go from five hundred nautical miles out to as far as eighteen hundred nautical miles.

Spectator: Well, what is seeing from five hundred nautical miles to zero?

LtCol LaFors: We would presume, and I think we are accurate in doing that, that if something comes into that eighteen hundred nautical mile radius that we will see, identify, detect, and track that long, long before it gets to that five hundred nautical mile position. That is a long time to fly even at a high mach number. At two or three times the speed of sound, we have more than enough time to identify and track that.

Spectator: Will this system have any effect, like on television reception in the area?

LtCol LaFors: We expect not.

Mr Raffa: No.

LtCol LaFors: And we really didn't have any with the experimental system. Yes, sir, in the back?

Spectator: When will Mid-State Electric Cooperative be contacted on the economics of furnishing a simple statement on the power needs?

Mr Pierce: Conversations have already been initiated with Mid-State Electric.

LtCol LaFors: In terms of identifying the kinds of power that exists and the availability of power should we select to go with Mid-State Electric.

Spectator: We're laughing because that is the manager.

Mr Pierce: Well, we talked to somebody over there.

Spectator: Is it a certainty that it is going in here?

LtCol LaFors: It is the Air Force plan to put the system here on the west coast.



Spectator: At this location?

LtCol LaFors: The plan is that at one of the two candidate sites we would put a transmitter. At one of the two candidate sites for the receiver down in California, we would put something there.

Spectator: Where this leaves off, then will normal radar then pick up, or would it be eliminating the standard radar that we are using now?

LtCol LaFors: On the inside ranges you mean?

Spectator: Yes.

LtCol LaFors: That is not decided, as far as I know. I think it is a fair possibility that we would keep those. But, I'm not even sure who decides that. I suppose the Tactical Air Command and NORAD decides, once we are operational, what the real need is for those other systems. If there is a need, I'm sure they would keep them. If there is not, they would like to save the money.

Mr Raffa: We also share those with FAA.

LtCol LaFors: Thank you. A lot of those radars, or most of those radars we share with FAA for civil air traffic control.

There are a few that are strictly Air Force operations. I think only nine out of the forty-six; but I'm not sure of that number. Yes?

Spectator: I'm wondering what good the system is if you are discovering an aircraft five hundred miles away from us. By the time you decide whether it is an aircraft, or a duck, or something like that, it will be here; if it's an enemy aircraft?

LtCol LaFors: The current systems are fallible. The Congress recognizes that; we recognize that. An aircraft can fly in as close now as thirty-five miles, if it is as low as five hundred feet. That is the capability of the current system. We provide capability to identify, not at five hundred --- the inside is five hundred nautical miles. We can see out to eighteen hundred nautical miles. So we have increased the warning time, and I guess I'm not sure of my numbers, and if I'm wrong, somebody please tell me; but I think we have increased the warning time by two to two and a half hours.

Spectator: I thought it was more like ten minutes.

LtCol LaFors: The current warning time, ten to fifteen minutes. We would provide warning times in terms of hours.

Spectator: Pardon me; are you talking about aircraft or missiles? My figure is six minutes on missiles.

LtCol LaFors: Cruise missiles?

Spectator: Cruise missiles.

LtCol LaFors: How fast are those Cruise missiles going?

Spectators: Well, ICBMs averaging eighteen thousand miles an hour; that would give you six minutes.

LtCol LaFors: That is not a Cruise missile; that is an ICBM.

Spectator: Yeah, sure.

LtCol LaFors: We are not looking for ICBMs; Intercontinental Ballistic Missiles.

Spectator: Oh, I see.

LtCol LaFors: There is another system to look for those, and you are right, the warning time is not an hour. Cruise missiles --- our Cruise missiles are --- I guess I'm not sure how fast they are, but they are less than the speed of sound. I guess most commercial aircraft cruise at about eight-tenths of the speed of sound.

Spectator: Do other countries have systems similar to this, other than the "Russian Woodpecker," that was mentioned?

LtCol LaFors: No. Not like this. There are other HF systems; HF being the high frequency systems. There are other systems that exist, but as far as we know, and correct me if I'm wrong, there are none that have the capability that this will have once it is operational, and that is, to detect, track, identify, in real time what that radar is seeing out there and report it to the appropriate authorities.

Dr Polson: SRI has had the research and development contract with the Office of Naval Research and they have been operating an over the horizon radar in southern California for something like twelve years, I think.

Mr Raffa: The Navy operated one in Chesapeake Bay even earlier than that. So there have been this type of radar built for experimental purposes, oh, for almost the last twenty years. As Colonel LaFors, during his briefing, said, it is not a new technology, but the improvement in computers especially has made this a much, much more reliable device. So now you can depend on it a lot more than you could some of the radars the old Naval Research Lab built down at Chesapeake or the radar that is alive and operating out in Hidden Valley, California, for a lot of years now, developing the research that we are now capitalizing on. Other countries have expressed interest in this kind of technique.

The Australians, for example, are very interested because it would be ideal for them. But the answer is, as the Colonel says, the Russians have a nasty-type thing, according to every ham in the world, and we have one which is now being built in an operational version. Other people may be testing them, but nobody else has one as an operational system.

LtCol LaFors: Yes, sir.

Spectator: What is the design life of this system, and if a new breakthrough comes about, such as using satellites or something like that, what would you do with the installation?

LtCol LaFors: I can answer the first part, specifically. Twenty years design life in this system. If some breakthrough came through, I don't know quite what it would be and I don't know when it would come and I don't know how quickly it could be implemented. But, you know, those things would be considered. I would expect that once this system is fielded, that it will run for the full twenty years and possibly more. We would not expect it to be shut down, even if there is some satellite coverage.

Spectator: What would you say would be the estimated cost of this on the west coast? The cost of this project.

LtCol LaFors: We have a problem dealing with money, so let

me give you a qualified answer. Part of our problem is that --- well, the real problem is that we have budgeting information that we use and we submit up to the Congress to identify what we think we need to do on projects. Those kinds of figures are for official use only, and we keep those --- (laughter from the audience) --- don't worry, I'll tell you more. There have been numbers released. A number that was released about a year ago was that the east coast and west coast systems combined, total systems, would run about one billion dollars. The west coast system would be something less than half of that. Yes, sir?

Spectator: I don't like to change the subject, but if they put this thing up here at Mean Rock, how big a well are they going to put in there?

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LtCol LaFors: Could you speak up? I'm afraid we can't hear.

Mr Raffa: The question is, if we go to Mean Rock, how big a well would we put up there. The size of the well would be enough to take care of about twenty-four people. The radar equipment itself doesn't use any water. The cooling system is totally enclosed; it may be a few gallons a day for leakage and that kind of thing. We use de-ionized water and we don't just pump that around and out. So the well would be just enough to take care of twenty-four people.

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Spectator: Being as that is on my allotment; my cattle allotment, I just wondered if I could trade you for some of that water. (Audience laughter).

LtCol LaFors: Do you mind if we don't answer you right now?

Spectator: I know what he's saying.

LtCol LaFors: Why don't we take about a three minute break and then we will open the floor for statements.

(The hearing recessed at 2030 and reconvened at 2040, 10 May 1983.)

Col Strickland: Now, we will give any of you an opportunity to say anything you would like concerning this system which we have explained to you. Currently, I don't have many cards. I only have one card. Is there anyone else who wanted to speak? I can't believe this, but that's great. (Audience laughter). Everybody answered all of the questions, I guess. I have as the first speaker, Mr Malcolm Miner, speaking for the Christmas Valley Park and Recreation District. Mr Miner, I was planning to hold everyone to ten minutes and to have a person with a clock here remind you when you had one minute, but apparently since you are the only speaker, take whatever time you want.

Mr Miner: How about five minutes?

Col Strickland: All right. The floor is yours, Mr Miner.

Mr Miner: I'm Mal Miner from Corvallis, Oregon. I'm an airport consultant, and I'm employed presently by the Christmas Valley Park and Recreation District. We've been working on a project now to improve the Christmas Valley airport, which is right out here, and we are in the planning phase right now for that airport and after that we will go into construction. This is an FAA project, funded by the Federal Aviation Administration through the Airport Grant Program. The airport has been determined to be one of the airports vital to the national airport system. It is an airport which the United States has decided they cannot do without, in simple terms. It serves a remote location, with very high activity in comparison to the population and it is of high importance to this area.

Presently, the FAA in the Seattle Regional Office is studying your document, as is the Oregon Aeronautics Division in Salem. That's Salem, Oregon not Salem, Massachusetts. They will be sending comments to you before the 10th of June. At this point, they have --- I talked with them both today --- they have no comments either way. We've looked over your report. We're not electronics experts, and we cannot yet determine what effects there



would be on air traffic in the vicinity of the airport, departing or arriving at the airport, or upon airport operations. As you know, the technology in the field of aviation is rapidly advancing and new equipment is always coming out and we, of course, don't know what that would be.

Now, we would be very concerned if this transmitter site were to have adverse effects on the airport. But at this time, we are not able and we are not going to assume that there will be adverse effects. But we understand that is a possibility. I would like to interject that it is my opinion, as a pilot, that a NOTAM is not the best way to notify airmen about staying away from that transmitter site. NOTAMs are issued from flight service stations and we have one in Redmond, but a lot of people don't use it, don't have to use it. NOTAMs are also found in the airmen's information manual, which is a big document that is hard to lug around. The best place to put that is on one of these aeronautical charts which every pilot in this area carries with him. I would suggest that should be where it should be put.

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It is my purpose on behalf of the Christmas Valley Park and Recreation District regarding their airport to put the Air Force on notice that the airport does exist, it is an important airport, it is being improved with federal funds. A report will be available to the Air Force, we expect in late June. It will have gone

through the state aeronautics, it will have gone through the Federal Aviation Administration, and local government; and there will be an approved airport plan about that time. I would like the Air Force to know that the airport will eventually be paved and lighted; it will be paved to 12,500 pound maximum gross takeoff weight strength, but because of the good soil here it probably can occasionally, certainly during dry weather, handle much heavier aircraft if they can handle a five thousand foot runway. Certainly the airport would be available for use before, during, and after the radar site is constructed.

I think you have my address if anything comes up. We would sure like to discuss it by mail, or however.

Col Strickland: Thank you. If there are no other comments.

Dr Polson: Could I make one statement about how the microwave --- not microwave, but this radiation hazard. There was a very good analogy given to me during the last break that might help to clarify the potential for hazard from the OTH-B radar at the exclusion fence, which is the security fence that runs around it. At the security fence, the power density is approximately one watt per square meter. Now, a person's body surface is about two square meters. So frontally there is about one square meter of cross-sectional area. If you were standing at the exclusion fence,

you would be absorbing about one watt of energy. The analogy given was to the CB radios that apparently you are quite familiar with. The CB radios work at about forty megahertz; the OTH goes up to about thirty megahertz. The CB emits about five watts. So that if you have the CB next to you, you are being exposed to about five times the amount of radiation that you would be exposed to if you were standing at the exclusion fence. As you move away from the exclusion fence the power density drops off similarly as if you moved away from the CB radio.

The other point I would make is that in terms of the energy that the body is using, because of the rate of metabolism in a human, in a normal condition, that is, sitting or standing, is somewhere around one hundred watts. So that gives you an idea of the thermal, additional thermal load which might be placed on the human body.

Col Strickland: Any other of you gentlemen have anything to say up here? If not, I would ask if anyone else has anything else they want to say.

LtCol LaFors: We have a few cards that have asked for transcript. If you want a transcript, after the meeting come up and fill out a card.

Mr Raffa: Or the final statement.

LtCol LaFors: Or a copy of the final statement.

Col Strickland: Sir, did you want to make a statement or did you have a question?

Spectator: Yeah, I would like to make kind of a statement here.

Col Strickland: Would you give us your name please?

Mr Tran: My name is George Tran. I work at Oil Dry out here and I'm also the local fire chief.

Col Strickland: All right, the floor is yours.

Mr Tran: You guys are going to come in here for roughly three years, throw some big money around, and disrupt our lives somewhat --- (audience laughter) --- Okay, we got Buffalo Wells in consideration, and Mean Rock. To the people here, I don't think there would be more than ten people in the room right now that could tell you where Mean Rock is at, or take you there. Almost everybody in this room can tell you where Buffalo Wells is at and take you there. Why don't we put this thing out back? The Buffalo Wells area has still potential as farm land. The Mean Rock area, it's got nothing but grief. There's no way they are going to farm out in the Mean Rock area.

(Several spectators made inaudible comments to Mr Tran's last statement.)

Mr Tran: I just wonder. You know we have people come in all the time; they go in through the back way there from Buffalo Wells into Lost Forest. A lot of tourists go back up in there and a lot of locals go in there for their own recreation. We could hide it at Mean Rock. Like he was saying over there before, that area out there is not much good for anything. Now, there's a lady right there who probably lives within three or four miles of Mean Rock and don't even know where it's at. (Audience laughter).

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Spectator: I do now. (More laughter).

Mr Pierce: We took care of that.

Col Strickland: All right, sir, thank you very much. Is there anyone else that would like to make a statement? Yes, sir?

Spectator: (Inaudible).

Col Strickland: Sir, I did not hear your name and I don't think my court reporter did. Sir, I didn't understand your name?

Spectator: Lyle Damewood.

Col Strickland: All right, sir, thank you.

Mr Damewood: We've got one of the biggest cow outfits in the United States. It goes all around these two areas. What relation --- well, between the BLM and you fellows, and the grazing for everyone that runs a cow out there. What is the answer to that? Are these fellows going to be cut down through the BLM in cattle numbers, AUMs, or have you got that far along with it yet?

Col Strickland: Did anyone understand the question?

Mr Pierce: Yes, I understand the question. Definitely, the acreage would be cut down, and as far as the allotments, the AUM allotments, that becomes a much more complex question. Even after, and I claim to be somewhat of a novice, and after talking at some length with BLM about this and understanding it, there is some trade-off with the prime belt district and so forth. It is not clear as to what the impact would be on the AUMs and the amount of cattle that one would be able to run. I think I would have to really refer your question directly to BLM, since we've discussed this with them at some length, and they, of course, know the amount of acreage involved.

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Col Strickland: Yes, ma'am?

Spectator: How many AUMs are involved in this twenty-eight hundred acres?

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Mr Pierce: I would have to look it up; but less than a hundred, I believe.

Congressman Smith: I would just like to amplify that if I may. Now, is there anybody else involved in that particular area at Mean Rock besides this gentleman?

(Inaudible comments from other spectators in the audience.)

Congressman Smith: And the ZX, right. Well, I'm going to visit with you about this, and with the BLM, and I will also be visiting with the ZX people on that particular issue. So, it is just you and the ZX, and that is all that is involved at the Mean Rock area.

Mr Damewood: Yes, I think so.

Col Strickland: All right, if there are no further statements, Congressman Smith, would you like to conclude with anything this evening?

Congressman Smith: No, thank you, Colonel. You've done an outstanding job, and thank you for coming.

(Audience applause. The hearing adjourned at 2054, 10 May 1983.)

## 2.2 Transcript, Klamath Falls, Oregon

The hearing at Klamath Falls, Oregon, commenced at 1930, 11 May 1983.

Mr Lynn: (Mr Ken Lynn, Past President of the Klamath Falls Chamber of Commerce, opened the hearing.) Welcome to the second hearing for the over the horizon backscatter radar. We are certainly pleased to see such a nice turn out. I think it won't hurt to talk about our last meeting just a little. I think we, with our enthusiasm, at the last meeting in September for those that were here, both pro and con, got a little carried away. We're going to emphasize the fact that everybody here has the right to express themselves and we shouldn't interrupt each other. It might not be as exciting a meeting; it might be a little bit more boring, but at least we can leave with our heads held high. Everybody here will have a chance to speak if they so desire. As you are asked to speak, if you will state your name and where you are from, we would appreciate it very much. We have some dignitaries in our audience that I would like to introduce at this time. Our County Commissioners; one is absent this evening, but I will introduce the two that are here. Zon Gerbert, would you stand up please; and Nell Kuonen. Thank you. (Audience applause).

We also have with us this evening, our Congressman for this district, Bob Smith. (Audience applause)



Congressman Smith: Thank you very much, and good evening, ladies and gentlemen. I don't want to take a great deal of time. I'm here like everyone to listen to you all and listen to the witnesses and the site selection committee from the Air Force force is here to do the same thing.

I just wanted to personally thank the Air Force for paying attention to Klamath County and to Klamath Falls on this very important issue. (Audience applause).

This is the second hearing, and I think Colonel Strickland said it very well today at lunch. I wonder how the Soviet Union would treat their people in the defense of the Soviet mission. Obviously, not by public hearing. But also, I want to say, never in my experience have I seen a community rise up in unison in support of a system and I am here to congratulate Klamath Falls and Klamath County and I think the support that you have shown to the Air Force is meaningful to them, and certainly will prove to them that they would be welcome here at Kingsley Field and in Klamath County. So I congratulate you as well. (Applause).

I have the feeling that this is almost like the great Biblical story of Lazarus. Kingsley Field lost the Air Force after World War Two, and here is a chance for a resurrection, and if the Air Force plays their cards right, they can act like the number one guy. (Applause and laughter). Thank you very much.

Mr Lynn: At this time, I would like to introduce a fellow that has been doing a lot of proclaiming lately. If you watched or --- pardon; heard the news, watched the news, or read the news Monday, you heard a lot of proclaiming going on, and when George Flitcraft started proclaiming then Nell Kuonen and Zon Gerbert got in the act and they started proclaiming and we've been proclaiming around here for three days. Now, George has taken time out from his proclaiming to introduce the Air Force to us. George.  
(Applause).

Mr Flitcraft: (Mayor of Klamath Falls). Thank you, Ken, you little old southern boy (laughter). You know, even in proclaiming, I came out number two. The County Commissioners out-proclaimed me three to two (laughter). And on top of that, what really bothers me a lot, I have to follow Bob Smith, and that is a hard act to follow, believe me. Just to get the record started off right; and I'm not going to read this thing because you've heard it before, but I am going to deposit it with the recorder over here so that it is a part of this hearing (handing a document to the court reporter). That was a proclamation (laughter), proclaiming this day Project Blue Suit Day Number Two, and I have to confess, in all sincerity, sir, the last time I had this suit on was the last time you were here (laughter). They don't even make them anymore (laughter). You know this is an extremely important

thing to our community and I'm sure you are all as aware of it as I am. We're here tonight, as I understand it, to take part in the study that has been on-going for some time; they call them environmental impact studies. The federal government, state government, local government, they have a code word for them; they are EIS's; but they are things that have to be done.

Ken stole a little of my thunder tonight, in that I was here at the last meeting, and I know that all of us have strong feelings one way or the other. But I would hope that we would be courteous, that we would allow a person to speak without interrupting, and really allow everyone to participate in this proceeding. I believe that if we do follow due process that much can come from this meeting tonight.

I would like to, and I took great pleasure in listening to him at the Chamber of Commerce forum this noon, where he described himself as a little old North Carolina lawyer, and I'm always leery of those kind, because some how or other they are going to sneak up behind you and get the better of you. But I think that we have a gentleman tonight, a member of the Air Force, that is going to conduct this hearing, to conduct it in a fair and open manner, and I would also say that he is the Chief Trial Judge of the Air Force. Now, that intimidates me a little, but don't believe it. He's just plain folks, and I think that if we work with him that much can come out of this meeting tonight. And I

think that Kingsley Field is a very appropriate place to receive the over the horizon backscatter radar operations mission. I would like to introduce to you, Colonel Strickland, Chief Trial Judge, Air Force. (Applause).

Col Strickland: Thank you very much. It looks like I have a problem; in fact, we don't appear to have a straight name in the crowd. Everytime I use the country lawyer from North Carolina routine, everyone reaches for their wallet, so I'm going to skip that one tonight and get on down to business.

My name is Don Strickland. I'm stationed in Washington D.C. which accounts for one of the many reasons I'm really enjoying my stay in Klamath Falls, Oregon. Anyone that faces that traffic every day can realize what a real delight it has been to see the wide open frontier for the last two days, and I've really enjoyed it. I've enjoyed the scenery and I've enjoyed your hospitality.

I have been assigned responsibility of conducting public hearings on the draft Environmental Impact Statement, which has been filed by the Air Force with the Council on Environmental Quality. Now, contained in this draft is a description of the proposed over the horizon backscatter radar system, commonly known as the OTH-B radar, and a detailed analysis of the probable impact the system would have on the environment.

The OTH-B is a very long range, all altitude, aircraft detection and tracking system, which will be further explained to you in a few minutes. Now, I want to emphasize that my role in these proceedings is simply to conduct the hearings. As was pointed out, my past experience has all been judicial in nature, and although I have no definite knowledge about this radar system which is probably one of the reasons they got me to conduct the hearings, there are many of the people here tonight that do, and they will explain it to you and hopefully answer all of your questions.

I think it is fair that I state that I, personally, will not make any decision or recommendations to the Secretary of the Air Force. I personally have not participated in the development of the project, nor have I rendered, nor will I render, any legal advice with respect to the project. My task is simply to conduct a fair and orderly hearing and offer everyone else an opportunity to say what they like, either pro or con, or whatever.

Now, the purpose of this public meeting is two-fold. First, it is to provide you with a chance to receive information on the proposed actions and to ask any questions you might have. This affords the Air Force the opportunity to clarify their position and it is purely informational in nature. Secondly, it is to provide you the opportunity to present your views to the Secretary

of the Air Force on the environmental impact on your community which would result from the OTH-B radar system. This permits the Air Force to receive representative samples of public opinion on the proposed actions, and such comments may either be verbal or written, and I'll discuss with you in a minute how it will be done.

Now the transcript of this hearing will be forwarded to the Office of the Secretary of the Air Force for use in preparing the final environmental statement, which is used in the decision making process on employing the radar system. All oral statements or questions are being recorded verbatim by Mrs Ann Gilmore down there, who is a qualified court reporter. Any written statements will be attached to the transcribed record and forwarded to the Secretary of the Air Force.

At this time, I would like to introduce Lieutenant Colonel Kary LaFors, who is the Deputy Program Manager of the OTH-B program system. Lieutenant Colonel LaFors is the project officer for the Environmental Impact Statement and will shortly explain to you, the nature and environmental impacts of the OTH-B radar system. Colonel LaFors will brief you in just a moment.

Now the ground rules for these hearings are few and simple. At the end of Colonel LaFors briefing, we will probably take a break and I understand there are those out there who have certain

cards. For those of you who desire to speak, I would ask that you please take a card and write on the card your name and address, and if you are representing any group or firm, the name of the group or firm. Now, a reasonable charge will be levied for individual copies of the transcript supplied to the public. The Environmental Impact Statement will be sent at no charge. If anybody wants a copy of either of these, you can indicate such on the card.

I might indicate I have received, prior to this hearing, at the Chamber of Commerce meeting today, a list of some twenty-six people who have indicated a desire to speak. Probably some of you have already filled out a card, or I will be getting that later. But I will call on these twenty-six first and take any cards later. If there are any duplications, well we won't listen to you twice.

As to oral statements, individuals will be allowed three minutes to speak. Individuals representing and speaking on behalf of groups will be allowed five minutes. Normally, I like to give everyone longer than this; normally, you would have five or ten minutes. But with the anticipation that I already have twenty-six speakers, and it looks like more to come, we would probably be here all night. I'm going to ask Mr Raffa down here to be my timekeeper, and I'm going to keep a gavel and a bell up here and

at about one minute, he will probably let you know what the time will be. Now, after your name is called, I would ask you to please come up to the microphone which is in the front there. When you get to the microphone, please state your name, address, occupation or employer, and the name of any organization you may be speaking for. Now it may be helpful to the reporter, if you think you have a name that should be spelled out you might like to spell it so we can be sure we get it correct; and particularly if you want a copy of the statement and so forth, we can have your correct name and address.

Now, this hearing I want to point out, is informal. It is not a court and cross-examination of the speakers or members of the Air Force would not be appropriate. No argumentative types of questions or questions which are, in fact, statements, would be appropriate. All of you will have ample opportunity to make statements after the questions. If you want to make a written statement and do not have it ready tonight, but desire to have it included in this hearing, you have until 10 June 1983 to do so. Lieutenant Colonel LaFors, in his briefing, will give you the name and address of where any written statement should be sent, and I think probably the representatives of the Chamber of Commerce will also have that address, so I will not repeat it here.



As has been pointed out to you before, I've attended many public hearings in my time, and I know that they are inclined to get stormy sometimes as enthusiasm warms up on one side or the other. I'm not particularly bothered by stormy public hearings other than it frustrates my responsibility to have a verbatim record of these proceedings. So, I'm going to repeat, I think, what the Mayor said. I'm going to ask you to use common courtesy with each other. I know there are a lot of people here who feel very strongly probably for the system, and I'm quite confident there are a lot of people here who feel equally strongly against it. I personally respect each of your opinions, whatever they might be; I'm sure you have a good reason for it; and I would ask that you respect each other's opinions and give the other person the opportunity to say whatever he likes. The only restrictions I plan to put on what you have to say is the time limitation, and I'm sure you can see that with as many speakers that we have who have indicated their desire to speak, we would not be able to entertain any filibusters tonight; we would like to keep going.

All right, at this time, --- this is why we are not going to have any filibusters (holding up a handful of cards given to him). At this time, I would like to turn the platform over to Lieutenant Colonel Kary LaFors, who will give the briefing on the over the horizon backscatter radar, and then after he finishes

then we will take a brief break, and then we will take the questions. Colonel LaFors.

LtCol LaFors: As he said, I'm Lieutenant Colonel Kary LaFors. I'm the Deputy Program Director for the over the horizon backscatter radar program office. We're located at Hanscom Air Force Base, just outside of Boston. Before I get into the briefing I would like to introduce the members of the team that we brought with us, a group of experts and knowledgeable people who can answer most all of your questions. Doctor Polson. Doctor Peter Polson is an expert in radiation effects of HF systems. He is a consultant to SRI. SRI is the firm that we hired to do the Environmental Impact Statement.

Mr Rick McCluskey. Rick is over here on my left. He is from the Hanscom Air Force Base also, and is our public affairs officer. I would like to say to any of the media people, if they have anything that they want to discuss with us to go through Mr McCluskey please.

Mr Roe Raffa, who will be turning the charts for me this evening. He also is from Hanscom, from the program office and is from the engineering division.

Mr Steve Pierce from SRI International, over here on my far right, was project manager for the draft Environmental Impact Statement.

Captain Desheneaux, who many of you know, was not able to make it at the last minute. Instead, we have Major Poli. Major Poli is from Tactical Air Command down at Langley, Virginia. Tactical Air Command is the command that will be operating the system after it is developed and installed.

This is an outline of the briefing that I am going to go through. I want to just describe some of the features of the radar to you so that you understand how it operates. We're going to talk about some of the west coast planning, and then look at some of the comments about the environmental process. After that, we will take about a ten minute break. For those of you who have not picked up cards and want to ask questions or want to make statements, you will have an opportunity to do that then. When we reconvene then we will have questions and answers, and then after that, statements.

The objective of our system is to provide surveillance and detection of aircraft approaching the North American continent. I want to describe, using the next two charts, how the OTH-B radar works. This first slide, at some risk of confusion, talks about not our system, but if you will, the normal line of sight microwave systems. This is a description of how the normal systems, or the existing systems work. They are microwave, we are not. They are line of sight, and as you will see on the next chart, we in the OTH-B system are not.

The key feature that I want to point out here, in terms of differences, is this system is obviously not able to accommodate to the curvature of the earth. Consequently, an aircraft flying in low, say at an altitude of 500 feet could get as near as up to thirty-five miles from the radar before it could be detected. That is not very far and so we are quite interested in deploying this OTH-B system.

So forgetting that other one now, and thinking now about this one, let me describe to you how its operation works. First of all, you need to understand that there are four key features to our radar. The first is a transmitting antenna; transmitters and a transmit antenna. If you will, there's two sites here; one of those is a transmit site. Approximately a hundred miles separate from those transmit antennas are receive antennas. And in this depiction of Maine on the east coast, you can see that that is supposed to represent about a hundred miles. The other two features are the ionosphere; the ionosphere is a dynamic atmospheric system. It ranges from fifty to two hundred and fifty miles above the earth. The fourth part of the system is the operations center that digests the data that comes through the receive antenna.

What we have then, is we have a transmit antenna broadcasting a radio signal up to the ionosphere. It is then refracted as it goes into the ionosphere and becomes a down looking radar. That

is, it looks down all the way to the ground and, therefore, objects cannot fly underneath it. The range of our system, the inside range, is five hundred nautical miles, and the outside range is eighteen hundred nautical miles. So that you see we have a much greater distance here.

A little bit of history, I think is probably appropriate. These systems that we are looking at, these OTH-B systems, are if you will, HF systems, or high frequency systems. That is opposed to microwave systems. They were the first to come into existence after World War Two, so we are not really a new technology. It is a technology that has existed for some time. However, we are only now able to do the kinds of things that we want to and that is really for two reasons.

The first one is we understand a lot more about the ionosphere; understand the dynamics of it and how to accommodate changes of signals to get proper readings in the receive antennas and understand what those are. The other is that we need a great deal of computing, computer processing power, to digest those signals and understand what they are. So this type of system really came into existence, in the form that we are making it, starting in 1976, and at the risk of some confusion again, I want to talk about an experimental system that we developed out at Hanscom Air Force Base.

We started that in 1976. That was completed in 1980, and then we ran a test on it for one year from '80 to '81. The next chart then shows you the transmit site of that experimental system. That operated for the one year of testing and then we shut that down. We've now begun to build an operational system on the east coast, and of course, we are planning an operational system on the west coast.

So here we have the transmit site. First of all, these are the buildings that houses these transmitters. The transmitters then send the signals out to the transmit antenna. You can see that they are quite long. In the case of the experimental system, they were about thirty-seven hundred feet. This large area that is in front of the transmitter out here, is what we call the ground screen. In the experimental system, that was a thousand feet. In the operational systems that we are planning for both the east and west coasts, it will only be seven hundred and fifty feet in front of that antenna.

This next chart then is a view of the receive antenna for the experimental system. In the case of the experimental system, we had the operations center co-located with the receive antenna and you see that building here. For both the east coast and the west coast systems, the operations center will not be co-located with the receive antenna.

You can see it looks like, in this picture, a long line of telephone poles. In fact, what we have here is a long line of telephone poles (laughter). In front of those, which you probably can't see, are some small receive antennas. The telephone poles have some wire mesh, or wire behind them, to provide the back screen for the receive antenna, and then we have the ground screen in front.

These then are the terminals which are located in the operations center, where the operators look to read the data that comes in through the receive antenna.

So, that was the experimental system. Let's talk more about the operational system; the one that we are in the process of developing now. We have just awarded; maybe I shouldn't say that anymore. We awarded to General Electric in Syracuse, New York, last June, a contract to begin development of the first sector of the operational system, and our abbreviation up here, IOS, is for Initial Operating Sector; the first sector. That is a sixty degree sector and looks to the northeast. That was begun last June and it is scheduled to be completed in 1986.

This fall we plan to exercise an option, again with GE, for the building of Sectors Two and Three, to complete the east coast system. Our schedule is to have that just shortly after the first sector so that both of those will be finished in 1986.

Looking then at the west coast, we have three sectors which we would plan to award in 1985, and a completion date for those would be 1987. You see down here in the south, this dotted area, we have direction from the Secretary of the Air Force to build the east and west coast systems, but have not yet received direction to do the south looking system. We have been asked to plan the budget for that, and in our planning, we would look to start one year after we start the west coast, or by 1986, and we would finish one year after we finish the west coast, or 1988. I think it is worth mentioning too, what we have in the north.

There really are two different programs, also located at Hanscom Air Force Base, separate from our program office, working the systems that look up there. The first one is up here in Alaska, it's a program called Seek Igloo, and it is upgrading those microwave systems that are up there. The next one that runs across northern Alaska and into Greenland; some of you may have heard the term, "DEW Line." We have a program to upgrade the DEW Line, and it's called North Warning. Those systems were built back in the fifties, and are a little old, a little creaky, and a little expensive to maintain. So you see that these three programs will provide the coverage around the United States.

Looking then, more specifically, to the west coast. You can probably not see much of the detail, so let me describe what



we're showing you here. This is Christmas Valley up here, and we have two candidate sites near Christmas Valley for the transmit antennas. The first one is at a place we call Buffalo Flat; those of you that are familiar with the valley, you may be familiar with the sand dunes here just to the northeast of the center of Christmas Valley. Buffalo Flat is straight east of that. The second site is to the north of the sand dunes at a place called Mean Rock, and they are, I guess, approximately fifteen to nineteen miles from Christmas Valley. Those are the two candidate sites for the transmit antenna.

As I said we need to have a receive antenna located at some distance, roughly a hundred miles, from the transmit antennas. In this case, we've nominated two different sites down in the Modoc Forest, just in northeastern California. The first is at a place called Rim Rock Lake and the next one, adjacent to it, is called Lone Pine Butte.

I think that most of you are familiar with the fact that we have only one site nominated for the support center, and that is at Kingsley Field here at Klamath Falls. In the next chart we show the four sites that are nominated for the operations center. Those sites are at Mountain Home Air Force Base, outside of Boise; McChord Air Force Base outside of Tacoma; Kingsley Field; and McClellan Air Force Base down in Sacramento.

These next three --- next four charts, talk a little more specifically about the kinds of things that we will be doing at each of the sites. At the transmit site, we would expect to fence probably less than the twenty-eight hundred acres that you see there to accommodate three transmit antennas. We would install a fifteen megawatt back-up power system. That is back-up power. We plan to use commercial power for the normal operation of the system. The three antennas then, by themselves, are thirty-seven hundred feet long. One looks to the northwest, that's Sector Four; one to the west, Sector Five; and one to the southwest, Sector Six. The height of those antennas vary; it ranges from forty to one hundred and forty feet.

There will be access roads. There are equipment buildings. There is an equipment building for each of those antennas, and we probably would be constructing some kind of support building for the twenty-four people who will be on station at each of the sites.

Let me take a minute to describe how we would be manning those transmit and receive sites. As I said, the support center is planned to be located here at Kingsley. The people that are in that support center are then sent out to the transmit site on a three day rotational basis. They work probably a twelve hour shift on, twelve hours off; spend the three days there; then come back and another crew goes out.

The receive antenna is pretty much the same. We don't need quite the acreage. We are down in California for those. The power requirement is less. The antennas are a little bit longer, five thousand feet, for each of those receive antennas. There will be three of them; access roads, equipment buildings for each one; and the same concept for maintaining and security for the receive antennas.

In the draft Environmental Impact Statement, we find it necessary to look to probably the maximum number of people that would be involved and the maximum number of acreage. In fact, we really would expect that we would have a little bit fewer people at the support center, probably two hundred fifty to three hundred.

The operations center then, probably three hundred to three hundred fifty people at the base; the two buildings. I think we only talked about one when we were here last fall, the thirty-two thousand square foot operations center itself. Tactical Air Command is now looking for an additional building of eighteen thousand square feet for the software support facility. What we would have in that building is a lot of computers that would enable the Tactical Air Command people to modify the software that runs the system, plug that in, and run it through to make sure it works before they put it on an operational system.

This then is a list of many of the things that were addressed

in the draft Environmental Impact Statement. I don't want to cover all of those. I want to mention just a few of those, and then at the conclusion of my briefing, Doctor Polson will say a few more words about this feature up here, the radio frequency radiation effects. So, I'll leave that to him for the moment, and cover a couple other of these.

Radio interference. That is where our radio signals have the potential of interfering with other communication devices. The study in the Environmental Impact Statement indicated that there was a possibility that at the transmit site that depending on the frequency that we were operating on, and the frequency of the VOR at the airfield, there was some possibility of interference. Our plan is to make sure that if that occurs, we do something about it to make sure, in fact, there is no interference with that field.

The other possibility that some people are concerned with is ham bands; ham radio operators. The experimental system that we had in Maine ran for a year, and in fact, we found no interference with ham operators. Some of you who are here this evening probably know the Russian over the horizon radar; that is a very noisy, very frustrating, very, I guess, obnoxious system. It is allowed to broadcast on a wide frequency and, obviously, those people don't care about who they interfere with. Our system

is not of that nature. We have guard bands to make sure we don't broadcast on ham frequencies, and during the operation that we had in Maine, we had no reported instances of interference with those people.

We see no negative impacts on some of these others. I think that we've talked about the numbers of people that would be coming into the area on previous charts. Some of you may be interested in the archeological impacts that we have, both at the transmit and receive sites. There are a number of Indian archeological sites in those areas. We're aware of those through the statement, and we would propose to do one of two things with those where we locate the antennas. One is to avoid them if we can; and the other is if we cannot, we would hire a team to come in and do a study along with the state or BLM archeologists, and document the sites before we remove them.

This chart then shows a schedule of the Environmental Impact Statement, and the process that we are in. We released the draft statement on the 22nd of April. The end of the forty-five day comment period is the 10th of June. After we get the comments in, we will prepare responses to those. Those will then be reviewed up through our headquarters to the Air Staff, and then be printed. We expect to print those sometime in early September. There then is another waiting period --- a mandatory thirty day waiting period

before the final is declared complete. That then completes my briefing. Doctor Polson will now explain a little bit more to you about the effects of the electromagnetic signals from our system.

Dr Polson: Good evening. It's after the evening meal and I don't know how many people have fallen asleep at this stage. My name is Peter Polson. I'm an electrical engineer and a physiologist. I have academic qualifications in both disciplines. For the past ten years, I've been involved in research on the biological effects of radio frequency radiation; first as a research professional at SRI International; formerly the Stanford Research Institute in Menlo Park, California; and more recently as an independent consultant.

I've been a member of the Institute of Electrical and Electronics Engineers Committee on radiation for ten years, and a member of the American National Standards Institute Committee C-95 on RFR hazards also. Because of the concerns that have been expressed about the possibility of biological affects from the OTH-B radar, the Air Force ask me to say a few words about that here tonight.

First, the OTH-B radar works by directing electrical and magnetic fields, or electromagnetic fields, towards the ionosphere.

These fields are in the frequency range of five to twenty-eight megahertz. This frequency band is the same general band that shortwave radio, as you just heard, amateur or ham radio, and is below the CB radio, television, and AM frequencies. For convenience we refer to it as radio frequency radiation, or RFR. We have to use acronyms all the time, of course.

The biological effects of RFR have been cited scientifically for at least twenty-five years. The first major program was instituted by the Air Force about 1958 or 1959, and was called Tri-Services Program, and was headed by Colonel George Nalphy of the Air Force.

A list of scientific publications on biological effects of RFR would presently number around six thousand reports. Each year there are probably about three hundred new scientific reports added to this data base. As an aside, I'm a member of the Technical Program Committee of the BioElectricMagnetic Society, which is a group of people who do research predominantly in this area, and in February of this year we reviewed two hundred papers on RFR bio-effects that had been submitted to the BioElectricMagnetic Society's annual symposium next month, in June.

There is clearly a lot of scientific research that has been conducted and is being conducted in this particular area. OTH radars are not new either. I am personally aware of an experimental

research OTH system that pre-dates the experimental system that was described a few minutes ago, that SRI International, in California, has operated for the U.S. Navy for the past fifteen years. Again, there is a great amount that is now known about OTH systems properties and effects, in general.

As part of the Environmental Impact Statement, Louis Heynick, a staff scientist at SRI, and I, conducted a review of approximately four hundred scientific research papers on biological effects of RFR that were pertinent to the OTH radar. It clearly is not possible to consider each and every one of the six thousand papers that are out there. The results of this particular review are available from the Air Force School of Aerospace Medicine as a technical report. I have a copy here with me tonight. You will have a name and address provided shortly upon the screen as to where you can write to request a copy should you so desire.

The technical report findings are summarized in the appropriate sections of the Environmental Impact Statement that is presently out as a draft. The conclusion of that study was that there is no reliable scientific evidence to suggest that long term exposure to the RFR from the OTH-B transmitter is likely to be deleterious to the health of even the most susceptible members of the general population, such as the unborn, the infirm, or the aged.



This applies to the region immediately outside the exclusion fence at the transmit site in Christmas Valley, where the ground level radiation levels are the highest. Here in Klamath Falls, a hundred or so miles from the transmitter site, the power density levels from the OTH-B system will be so low as to be completely negligible in terms of any direct biological effects whatsoever. That is my considered scientific opinion. Thank you. (Applause).

Col Strickland: Can we have that last slide please? This is the address that anyone who wishes to write for a copy of any of the reports that have been referred to; you may write to that address. At this time, what we are going to do, is take about ---

Mr Raffa: Don?

Col Strickland: Yes.

Mr Raffa: The zip code is wrong. It should be 01731.

Col Strickland: That saves Mr Raffa a lot of work, by giving the wrong zip code (laughter). At this time, we are going to take about a ten minute recess while we set up here, and this is the appropriate time after that where we will take questions.

I'm going to ask you again to fill out a card. People will pass in front of you, and I ask you to put your name down, if you like. You don't have to write your name for a question unless you want to. What I'm going to do is gather these cards and distribute them among the experts up here according to their particular field. At the end of the cards, I will probably call for any more questions from the floor, but it has been my experience that if people write the questions down they probably won't ask as many and we can get on with the hearing. Let's take about a ten minute recess.

(The hearing recessed at 2025 and reconvened at 2040, 11 May 1983.)

Col Strickland: If everyone would take their seats, we can get started. I think that in addition to the twenty-six people I told you I knew who wanted to speak, I've just added these. Before I even can get to these yellow cards, we've had several questions. I'm going to turn this over to the panel who have taken the questions according to their expertise; and I think the way we will do it is after they finish answering the questions they have on the card, if that doesn't satisfy the person who asked the question or if they don't think they answered it correctly, I'll let the person maybe rephrase it. As I said before, these people are not on the witness stand and maybe if you are not

satisfied with their answer then maybe at some point; and maybe you will never be satisfied with their answer, and let's let it go at that. Let's go on with these and see if we can't keep it orderly.

Dr Polson: I have a question here from a Gabriel Gomez, 407 North 9th Street, Klamath Falls. The question is, and it goes on for a little here: The Air Force has said it cannot give categorical assurance that we will not see an increase in birth defects, cancer, or weakening of resistance to disease. It has said, in effect, that there may be some hazards associated with OTH-B. What is the Air Force going to do to address this situation in the way of local studies on health factors as well as levels of radiation? Has the Air Force studied current levels of birth defects, cancer, and other diseases in the Klamath Falls area? Well, about the first statement that the Air Force says it can't give categorical assurance that we will not see an increase in birth defects; I think the reason for this statement was probably that in the realm of the scientific world that we live in, it is impossible for us to make absolute statements. Absolute statements are in the realm of theology, not science. What we can say is, is that there is a certain probability of occurrence of an event, and in the present situation, as I said

earlier on, I believe that there is a very, very low probability; so low as to be completely negligible in our normal considerations. With regard to the Air Force studying current levels of birth defects, cancer, and other diseases; I don't know of any studies by the Air Force. I do know that I was reviewing a paper recently that concerned a --- or claimed to show a relationship between cancer mortality and Air Force bases. I have reworked through the data. One of the bases that I considered; there were ninety-two operational Air Force bases; one was Kingsley Field. It was for the period 1950 to 1969. The local county has a cancer mortality for that time period, total cancer mortality, male and female, statistically significantly below the national average. Does that answer the question?

Col Strickland: There is a hand up over there. Did you ask that question?

Mr Gomez: Yes. I would like to clarify; in terms of a baseline study, what I was asking is, does the Air Force intend to do a baseline study on current radiation levels in this area, plus current levels, as I mentioned, of birth defects, cancer, weakening of resistance to other diseases, so that at some time in the future, five, ten, or fifteen years down the line, once

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this system is operational for some time, we have a perspective from which to judge whether, in fact, there have been any changes in these various health areas; and if not, why? If the Air Force is not going to make a baseline study, why not? I would like to believe that the Air Force is acting in good faith and does believe there are no health hazards. If that is true, I would assume that the Air Force would have no objection to doing this baseline study. Thank you.

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LtCol LaFors: Let me try and answer that. The current planning does not include any effort to do such a study. However, having received the comment in these hearings, we will evaluate whether or not the Air Force would want to plan to do such a study and include that in the transcript.

Dr Polson: I have a second question here from a Richard C. Bergstrom, Ashland Star Route, Klamath Falls. As a local citizen, teacher, parent, I'm concerned about the possible health hazards which might be associated with backscatter system. Are there any baseline studies or tests planned? How do we know what will happen to us ten years from now? Could somebody else answer whether or not there are any tests planned on the backscatter system? I know of nothing.

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Spectator: I would really ---

Col Strickland: Sir, I'm going to have to ask you; the radio man just told me we're not picking up the audience and we're recording. Would you mind coming up to the microphone here so we can make sure we get you on the radio.

Mr Bergstrom: I think my question was really similar to Mr Gomez's. I'm concerned about a baseline study. I would like to know, you know, where we are ten years from now? If we have nothing set up to evaluate what has happened to us over this ten years, five or ten years, you know, we're going to be in a terrible state, if something is causing some problems.

Dr Polson: I think the answer that was given to the last question is probably applicable to this one as well.

Mr Bergstrom: Thank you.

Col Strickland: Thank you, sir. Could we have the next question.

Mr Raffa: I think I have it.

Col Strickland: Could you please use the microphone so we get you on the radio?

Mr Raffa: The OTH-B is designed to reflect off the ionosphere. Is there any possibility of reflection off clouds or local weather conditions? A very simple answer. No. I like simple answers. The energy from the transmitter is refracted through the ionosphere. The ionosphere is a layer, or series of layers, electrified particles, and it is the electrification of these particles, the ionization, which allows the energy, or force of energy, to be bounced back, refracted. Weather clouds and things of that sort, no, it would not. Does that answer the question?

Col Strickland: Next question please.

Mr Pierce: I have three questions here of the same general nature. One is from a Mr Russell Wyatt, Klamath Falls, and he states: I would like to inquire about the certain language in the no-action alternative statement; expound on said statement, allowing rebuttal and comment on certain shortcomings that I feel exists in the statement. The other two questions are about the same nature, essentially stating that the NEPA guidelines; that's

the National Environmental Policy Act guidelines, state that alternatives --- all alternatives must be fully developed. Why is the no-action alternative given --- I think it's supposed to say --- not given much consideration. Firstly, just as sort of a statement about protocol, I don't think we are going to have an open rebuttal on comments, but if there are statements to be submitted, there will be a period after this in which to submit statements, if indeed, there are parts of the Environmental Impact document that you feel are deficient or inaccurate in any way. All those statements will go through the Air Force and then back to SRI, who prepared the document, and then we will respond, in writing, to each one of those statements. Now, this is the proper format for submitting statements for deficiencies or perceived deficiencies.

The no-action alternatives, according to NEPA guidelines, is required in each Environmental Impact Statement, and indeed, is included in this statement. It is not a terribly lengthy portion of the document, primarily because with this particular action, that is, construction of a system, radar system, no action is simply to not construct it. Therefore, all of the consequences that are stated in some four hundred pages of document would simply not occur. There is essentially nothing to be gained from delay. That is to say, sometimes one can make arguments or



discussions about if the project gets delayed more will be learned or circumstances will be changed, or perhaps obviate the need for the action and so forth. That is not the case here. Have I answered the question sufficiently, Mr Wyatt?

Mr Wyatt: No. Could you please just explain yourself a little bit more?

Mr Pierce: Could you be more specific?

Mr Wyatt: Yes.

Col Strickland: Sir, could I ask you to come down and use the microphone?

Mr Wyatt: I would like to call attention to a few of the things that you are saying here, okay? And yes, I feel it is lacking. Are you talking about neither characteristics nor the affected characteristics of the environment, which in and of itself, say to me they will be affected characteristics of the environment; and I don't think that you go into enough detail to explain the positive factors of not having the backscatter radar system.

Mr Pierce: Again, the project, by it being a project, will alter the environment, that is, by the buying of space or ground. There is obviously use of natural resources and so forth. In the statement --- it is divided really into two parts, one of which is a description of the environment without the action. The second part of the statement consists of, of course, the environment with the action. The first part of the document, in Chapter Three, which you probably read, Mr Wyatt, is really the description of the no-case if the project is not constructed and there are trend lines on the effects to the environment. I think that really is the part of the document you are talking about; the kind of information you are talking about, if I understand. That is to say, what is it going to be like here without the project being built, and that is addressed within the document.

Mr Wyatt: Okay. The language that is bothering me in this no-action statement is basically the admittal of the environmental impact, and then, once again, we come back to the prospect of having the environmental impact evaluated; the probability evaluated. Now that, to me, leaves me quite skeptical that perhaps a baseline study will not be conducted, which will allow us to compare it to some years down the road; and given that, that this evaluation is a possibility, I think that we should postpone it

until this baseline study is done, and also that we look at the positive aspects of not having the backscatter radar system.

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Thank you.

Col Strickland: Sir, I would say that was more of a statement than a question, but we got it anyway. Are there any more questions?

LtCol LaFors: I have one from David Taylor. How many jobs generated through the radar installation operations center would actually be given to, or gained by, local people who lived in the Klamath Falls community prior to the installation and operation, in comparison to the number of jobs filled by people originally living outside the community? I think that two statements are probably appropriate. One is, our prime contractor in Syracuse, in the experimental system, hired through a subcontract process; a competitive subcontract process, all of the effort that they needed for the construction phase of the program. The next part is, through the environmental survey, it looks as though two numbers, I think, are reasonable for consideration. One is that there would be on the order of one hundred and twenty secondary jobs created in Klamath Falls if the operations center were developed here; the secondary jobs being because of the

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existence of the development process. For the support center, the estimate is that there would be about sixty secondary jobs. Those are in addition to the work going on with the over the horizon. So, if both of those facilities came here to Klamath Falls, a hundred and twenty secondary jobs; excuse me, a hundred and eighty secondary jobs. It is the estimate that because of the unemployment rate that currently exists and is expected to exist in Klamath Falls, when the project comes, that most of those jobs would be filled out of existing resources. It's hard to know, with any specific individual, whether he had just come into the area or not would be hired; but the estimate would probably be that those jobs could be absorbed by the local population. Does that answer the question?

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Col Strickland: Apparently not.

Spectator: You mentioned that there would be a hundred and twenty jobs created by the implementation of the operations center at Kingsley Field, as well as sixty secondary support jobs, which gives us a total of a hundred and eighty. Earlier in the week, there was a statement that there were going to be two thousand jobs generated in the Klamath area, including not only support services, but the jobs that may be spin-offs from the Kingsley

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Field installation. There seems to be a considerable gap; one hundred and eighty jobs to two thousand jobs. Could you clarify that statement that was made in the paper, or is it an actual and realistic projection that there will be two thousand jobs generated by installation of the radar in this area?

LtCol LaFors: I'm afraid I'm not familiar with the two thousand job statement. But I think from our perspective, the number of jobs, the total number of jobs created, would be these hundred and eighty, plus the two hundred and fifty to three hundred that would be for the support center, and the three hundred to three hundred and fifty if we install the operations center here. So the sum of those is less than two thousand.

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Spectator: Thank you.

Col Strickland: Any further questions, gentlemen?

LtCol LaFors: I have another one from Phillip Zeman. What priority nuclear target is Kingsley Field now? How will the new radar affect this priority? As was the case last fall, we do not know. We have no access to the Russians' target list or the priorities of those target lists. However, it is the Air Force's

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feeling that the system will not significantly increase the priority of this area as a target. The OTH-B radar system will play a vital role in U.S. nuclear deterrent capabilities; but it is a soft target and purely a defensive system. It is unlikely to be designated a nuclear target for enemy missiles.

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Spectator: Excuse me, I would like to speak to that.

Col Strickland: Come down please. Sir, is this going to be in the form of a further question, or is this going to be a statement?

Spectator: This is a question on that statement.

Col Strickland: All right, fine. You may proceed.

Spectator: If the backscatter radar were in this area and the strategic importance of it is to get a certain amount of bombers that are flying at low level altitude, then would not these installations be a prioritized target by the Soviet Union?

(Mr Phillip Zeman informed members of the team after the hearing that this series of questions were asked by a person unknown to him although they were in response to his original question.)

LtCol LaFors: The system is a warning system. It is not designed to be an operational system after an attack has developed. So that if bombers or other weapons were identified as coming in, the system would have satisfied its mission.

Spectator: So, as I understand this, it would be like after a first attack had happened, these bombers that would be flying about two or three hundred feet above the air would be coming into this area from Russia, and this system that you have would have enough altitude arrangement for its radar that it could pick them up, is that true? I'm not talking about first strike. Is this a deterrent? I'm not necessarily speaking deterrent, but I mean, it's after the fact; after the initial blast has happened, this is what is going to happen; this radar system will pick up all the other bombers and would it not become a prioritized target just for the very fact that it's going to pick up their bombers? For instance, their ballistic missiles are shot out of the air by laser beams, okay; this is futuristic, of course; and the bombers coming in at real low level and the satellite can't pick them up if they are right next to the ground. It can't tell the difference between the two. So the bombers are going like really close to the ground, only a hundred feet up in the air, and they are going like an FB-111 does and stuff. What I'm trying to say is, will

this become a prioritized target because of that fact? Will it become a prioritized target?

LtCol LaFors: I think I understand your question, and let me try and answer it this way. First of all, let me repeat, the system is a warning system. It is a warning system for aircraft, for air breathing systems, aircraft and missiles, Cruise missiles. We need to differentiate between the two kinds of missiles that we might be talking about here. Cruise missiles fly in the air and are detectable by our system. The other kinds of missiles that exist that you referred to are Intercontinental Ballistic Missiles. This system is not a warning system for those Intercontinental Ballistic Missiles. We have other systems; we have microwave systems, that look up through the atmosphere to determine whether or not there is an ICBM attack. In the scenario that you were generally describing, it sounded like you were saying that the Russians might choose to first strike, or send their first weapon systems as ICBMs. If they do that, the warning systems --- these other warning systems for ICBMs would detect that attack. The OTH-B then, really, being a warning system itself, serves no major purpose, if the thing we want to know is, are we under attack. If the Russians choose another scheme, and that is, trying to fly any aircraft underneath existing radars, or flying



them in in whatever condition, our system is designed to detect that and determine that we are, in fact, under attack. Then having served its purpose, we would launch our forces.

Spectator: Would not these sites be a prioritized target of the Soviet Union therefore, because they want to get their bombers in and destroy us; and these sites are set right at Klamath Falls? It's main communications center will probably be Kingsley Field. Would not this site be a prioritized target for the Soviet Union? That's what I asked.

LtCol LaFors: And I think I answered that. Let me say again, no we don't think so. It's a soft system; it's not designed as a hard system to withstand attack.

Spectator: But the bombers are coming in, and they are flying a hundred feet above the ground ---

(At this point, the question was interrupted by comments from various spectators, most of which were inaudible.)

Spectator: --- and you don't think we would be a priority target because they want their bombers to get into our big cities

and they want to get on there and get industrial targets and do you not think we would be a prioritized target? That's all I asked.

Col Strickland: I think he has answered the question to the best of his ability. I think we had better get on to the next question.

LtCol LaFors: I'll apologize first; I'm not capable of answering this, and I suspect that none of our panel members are. The question is, how many more jobs would be generated by the expenditure of this approximately five hundred million dollars if it were spent in the private sector rather than the military? I confess that I'm not a sufficient economist to determine what kind of job generation results out of defense spending as opposed to private sector spending.

Col Strickland: Unless anyone wants to take a crack at it, and I certainly don't; but I'm sure that there are other people who could answer that question. I'm sure that there are experts who could answer that.

LtCol LaFors: I guess I might add, as I stated in the fall,

the system for determining how we spend defense dollars is a complicated one. It involves all levels of defense as the projects are identified, and filtered up through the Air Staff in the case of the Air Force, over to Defense and to the Congress. The Congress then is the one that appropriates monies for the projects based on their best judgment, and in this case, the Congress has determined to fund our program.

Col Strickland: Are there any other questions?

Maj Poli: I have two questions here. The first one is, what would be the source of heating in the operations center? That has not been determined yet. The operations center is still under design. The second question is, how many times in the last ten years has the steam boiler at Kingsley Field been inspected? And the third question is sort of connected to this; what are the qualifications of the current boiler operators? At Kingsley Field, I assume. I have no idea. (Laughter). For this type of thing at the Tactical Air Command, I can just go down the hall when I go back to Langley and ask the people in the maintenance department the answer to these questions. Also, to the people who asked the question, if he will give me his name and address, next week I will get an answer. The local person to contact would

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be the Base Civil Engineer at Kingsley Field. His number is in the phone book; I found it when I got here. You could call him up and ask him these questions. That might be more appropriate.

Col Strickland: Are there any more questions? Apparently not. At this time, we will proceed with the presentation of the people who wish to speak. As I reminded you before, I'm going to limit you to three minutes for personal speakers and five minutes for persons who are representating an organization. I'm going to ask you to come forward and use the microphone so we can all hear you, and I know you would like to know that you are on the radio tonight. I'm going to ask Mr Raffa if he will get his stop watch out and when you have one minute to go, I'm going to let him start waving his hand or making noises, whatever he would like to do.

I'm going to start with the list that I was given, and we will continue until everyone has had an opportunity to have their say. The first speaker I have on my list is Mr Robert Bjorkas, if that's correct, apparently representing the Office of Forgotten Americans. Is Mr Bjorkas here? Well, that takes care of that. I'm not going to run this like an auction, so if a person doesn't come forward when I call their name, we'll probably just railroad it right on through. Next, I have the Klamath Potato Growers

Association, but I don't have the name of the speaker who is going to represent them. Is anybody representing the Klamath Potato Growers Association? Apparently not. The next speaker is Mr Jim Allen, representing the Rotary Club. Is Mr Allen here?

Mr Allen: I'm here, but I have no additional statement, except our letter. (Atch 2)

Col Strickland: All right, thank you, Mr Allen. Very well put. (Applause). Mr Lloyd McClure of the Klamath Board of Realtors. Is Mr McClure here?

Mr McClure: I'm President of the Klamath Board of Realtors and I'm here to express that our two hundred and twenty strong membership's support the support center location here at Kingsley Field; and we want to welcome you all. (Applause).

Col Strickland: Thank you, Mr McClure. The United Way, represented by Peggie Eccles.

Ms Eccles: I have it all written out. I will put it over here in the interest of time. It's a positive reaction. (Atch 3) (Applause).

Col Strickland: All right, thank you, Ms Eccles. Mr Bob Kensick, representing the YMCA. Is there anyone representing the YMCA? Apparently not. Bob DeRosier of the Klamath Yacht Club. I guess he's out on his yacht tonight.

Spectator: I have letters from several of these organizations that were unable to attend tonight, including the Rotary Club and the Yacht Club. I might add that all of those people on that list you obtained today are in support of the project.

Col Strickland: All right. Mrs Marion Lashbaugh, for the Women for Agriculture. Did I get your name right, ma'am?

Mrs Lashbaugh: Yes.

Col Strickland: I get in lots of trouble with my southern accent sometimes.

Mrs Lashbaugh: I either got the wrong information or you've been promoted because I was told you were a Lieutenant Colonel, and I don't mean to reduce you at all.

Col Strickland: Well, I don't care what you call me so long as you smile.

Mrs Lashbaugh: My name is Marion Lashbaugh; I live at 1423 Homedale Road. I'm President of the Klamath Basin Women for Agriculture. Our group is a member of the Oregon Women for Agriculture and American Agri-Women. The organizations work to promote agricultural products, improved farm life, and the entire agribusiness community throughout the United States. We would like to give our support and encouragement to locating the operations center for the proposed over the horizon backscatter radar system at Kingsley Field here in Klamath Falls.

We believe any small amount of pollution from added commuter traffic or facilities necessary to the operations center would be present with nearly any type of increase in jobs and certainly a desirable trade-off for reduction in unemployment in the area. Additional jobs will improve the local economy, add a diverse type of job which would complement the local employment, and very likely reduce theft, vandalism, and other minor crime problems throughout the Klamath Basin. Increased productivity and more jobs are highly desirable for the general well-being of the community.

The Department of Defense has little representation in Oregon and we welcome an Air Force establishment as an integral part of our national defense system. Since this is to be part of a defensive operation, rather than offensive, we feel it highly

desirable to have it located at Kingsley Field for the benefit of the community, the State of Oregon, and the overall protection of the United States of America. The Klamath Basin Women for Agriculture would welcome the Air Force to our community and foresee no adverse impact whatsoever on agriculture in the area. (Applause). (Atch 4).

Col Strickland: Mr Jim Ward representing the Klamath County Chamber of Commerce.

Mr Ward: I, too, earlier today like our illustrious Mayor was fully arrayed in blue; however, a quick lunch at McDonalds led to some lettuce, pickles, and tomatoes on my pants, so I had to go home and change (laughter). My pants changed to grey, but my heart is blue, gentlemen (laughter). To Lieutenant Colonel LaFors, and the team that were here before, we welcome you back. To Colonel Strickland and those of you who are new, welcome. I'm speaking as President of the Chamber of Commerce. I'm also a native Oregonian; native born Klamathite for a generation. I operate a funeral home here, which has absolutely no significance on the statement (laughter).

As President of the Klamath County Chamber of Commerce and representing approximately seven hundred members, I can assure you



that an overwhelming majority of the area's businesses and people fully support location of the OTH-B at Kingsley Field and other proposed sites. This includes Christmas Valley and Alturas, which are in our trade area. We view location of the OTH-B in our area as an integral part of our future diversified economic base. We need this type of economic development because Klamath County and the four other counties of our designated trade area, namely, Lake, Harney, Modoc and Siskiyou, can be classified as economically lagging areas, with unemployment running as high as 15.6 percent annually and we need the jobs.

The Chamber has been in the forefront of those who want the Air Force back. We pledge our support to the Air Force mission and its people. Welcome. (Applause) (Atch 5)

Col Strickland: Thank you, Mr Ward. Again, I'm having trouble reading writing. Mrs Nell Kuonen. K-u-o-n-e-n. I'm sure I must have really stepped in it then from the look on your face (laughter).

Mrs Kuonen: It's quite all right. I didn't write it.

Col Strickland: You are representing the Chairman of the County Commissioners?

Mrs Kuonen: Yes, I am. And I would feel the same way no matter what you call me, just as long as you smile. I'll forgive you if you come to Klamath County. I didn't want to be outdone by the Mayor either, and I too, have a proclamation that I will leave with you. As you were notified earlier, one of our Commissioners is out of town, and reading through his testimony, I find that we agree so closely, that I'm just going to say on my behalf that I can give you twenty-two more reasons than those printed in the paper why you should come. I will read the testimony, as I promised I would, of the other Commissioner, Roger Hamilton, who is out of town on economic development. His words, quote:

"I fully support the establishment of a maintenance and support facility and an operations center for the Air Force over the horizon backscatter radar in Klamath County. This installation would help a stagnant Klamath Basin economy get off the ground. The employees of the new facilities, given the multiplier effect, in terms of general demand for goods and services throughout the county, could well mean many additional job opportunities for our citizens. It would create a direct demand for the products and skills of our new high tech firms in the basin and the services of our Oregon Institute of Technology. The computer center location here is also bound to have a significant impact on the identification

of this area with high tech production throughout the state and the nation. The installation would bring new blood into the Klamath Basin, people who would undoubtedly contribute much to the community. It would also have a significant impact on demand for air services, and help us upgrade our air transportation scheduling and carrier quality.

From a broader perspective, the OTH-BS radar is for me a wise and cost-effective way to invest our defense dollar. An effective radar system will serve not only as a deterrent to a potential aggressor, but help us to neutralize an attack if such an event should occur. The entire west coast will look to southeastern Oregon for our ability to see far and clear. In a sense, we will find ourselves recognized as the Paul Revere of the western half of the nation; a high-tech, space-age Paul Revere, ready to sound the alarm if our national security should ever be threatened from the air.

I welcome the decision to base the OTH-BS radar support facilities in Klamath County and look forward to cooperating with personnel of this worthy and exciting project."

That is the end of his statement and you can see why I felt I needed to add nothing to it. Thank you for coming to Klamath County and we do hope you will come back soon and stay. (Applause). (Atchs 6 and 7).

Col Strickland: Is this Lon Gerbert, County Commissioner?  
Is that an "L" or a "Z?"

Mrs Gerbert: That's a "Z." I don't have a proclamation, which I signed with Commissioner Hamilton and Commissioner Kuonen, but it is with a great deal of pride that I welcome you to Klamath County. I know that you have now experienced the generosity and warmth of our people, and you are finding out about our environment. Our environment includes good schools, an outstanding facility at OIT. We have abundant outdoor recreation for you to enjoy. We have clean air. We have welcoming churches. We have concerned parents who work in the YMCA, the Little League, Scouting, and 4-H, and I do have a question for you. Knowing this, why would you choose anywhere else? (Applause).

Col Strickland: Thank you, ma'am. The American Legion; I don't have the name of the speaker. Who is going to talk for the American Legion? I believe he spoke to me before and said he had to leave. The next organization is the VFW, but I don't have the name of the speaker. I can't imagine the VFW keeping quiet here. (Laughter/Applause).

Mr Reeder: My name is Allen Reeder. I'm Commander of the

local Veterans of Foreign Wars. Naturally, we support the defense of the country, and we have one thousand plus members who want you to come to Klamath with your backscatter program. We're speaking positively for the program. Also, I'm going to retract here a little bit and mention something else. I have worked in labor for years, in labor unions. You stop and talk about jobs. You look at the U.S. Government standards, what this is. You bring in one job, you bring in a dollar to the basin, you bring in five more in support. Our community needs this base. Let's face it. I work in the lumber industry and trees are not as big as they used to be. We don't have as many trees left. If we're going to protect this basin, let's bring them in here and get some more jobs. I thank you. (Applause).

Col Strickland: The next organization is the Marine Corps League. Do I have any Marines in the audience?

Mr Saunders: First, we would also like to welcome you to Klamath Falls. We hope you enjoy your stay. My name is Ed Saunders. I represent the Crater Lake Detachment of the Marine Corps League. I would like to talk about three areas relating to the over the horizon backscatter radar system that the Marine Corps League feels are very important.

First of all, according to the recently released Environmental Impact Statement conducted by the Air Force and other agencies, including the U.S. Bureau of Land Management and the U.S. Forest Service, no significant adverse effects could be expected from the operation of the OTH-B. The main concern here is the effect of this radar system could have on those who have pacemakers. This Environmental Impact Statement proved that those individuals would not be affected.

Secondly, the OTH-B will give Klamath Falls an active role in our country's national defense. The OTH-B is a sophisticated technology, which detects and tracks aircraft at distances beyond the horizon. The west coast OTH-B and her sister on the east coast, together, will give us coverage of approaches to the North American continent up to eighteen hundred miles. At present, our radar system is only capable of detecting objects up to two hundred and fifty miles off-shore, giving us only fifteen minutes of warning of approaching aircraft, assuming of course, that those aircraft are flying at a rate of a hundred miles an hour. The OTH-B system, can detect ships, aircraft, and missiles up to eighteen hundred miles off-shore. This would increase our warning to one hour and forty minutes. This is an increase of about five hundred percent over the present system. Just think about that for just a minute. Our survivors and those who died at Pearl

Harbor would have loved to have had such capability. Lastly, this program could provide a number of new jobs in Klamath Falls. By the end of April, our local unemployment was 14.2 percent. If Klamath got both parts of the OTH-B mission it would lower this one full percent. By the year 1986, one thousand military and civilian people would be working at Kingsley Field.

In closing, I would like to say this. With these three points in mind, the Marine Corps League would like to encourage each and every citizen to join with us and bring the over the horizon backscatter radar mission to Kingsley Field. I thank you. (Applause) (Atch 8)

Col Strickland: The next speaker is Roxanne Osborne representing the Bar Association and County Courthouse. Is Ms Osborne here. I'm sorry she's not here. From what I've heard so far, I wanted to find out how to get admitted to the Oregon Bar (laughter). Phyllis Schoenphal, the VPW Club. Is she here tonight? Apparently no. The Klamath Cattlemen's Association; anyone from the Cattlemen's Association? Apparently not. Doctor Jim North of the Dental Society. The Elks Lodge; anyone to speak from the Elks Lodge? Exchange Club, Klamath Falls, Gil Hardy? Larry Burt, Experimental Aircraft? Chuck Collier of the JayCees? Kathy Lee of the JayCettes? You say all of these people have

given statements, is that right?

Spectator: Mostly, yes.

Col Strickland: Lee Daniels of the Kiwanis Club? Larry Holverson of the Linkville Kiwanis Club? Bob Russell of the Sunrisers Club?

Mr Holverson: My name is Larry Holverson and I'm speaking as President of the Linkville Kiwanis Club. And as Kiwanians we are very interested in the livability and the economic welfare of our community. As we move out of this recessionary period, we are very much aware of the need for further diversification of our economic base. We view the Air Force return to Klamath Basin as being a real boost in achieving that goal.

Unlike many communities impacted by military installations, our courtship has blossomed for well over a hundred years and we are looking forward to the prospect of renewing it. Our climate, our geographic setting, our recreation, school, and most of all, our friendly people, make Klamath County an ideal place to live. I am asure that this has become very apparent to all of you in your visits to Klamath County.

Again, I would like to say welcome, welcome to Klamath Falls



and Klamath County, and we are looking forward to you returning with the over the horizon backscatter operation and the many Air Force families and personnel this will bring with it. (Applause) (Atch 9).

Col Strickland: Bob Russell of the Sunrisers Club? George Gardis of Knights of Columbus? Ed Wideman of the Klamath Lion's Club.

Spectator: Ed couldn't be here tonight, but on behalf of him and the Klamath Falls Lion's Club, we would like to welcome you to Oregon's city of sunshine, recreation, agriculture, timber, and Ronald Reagan's Rendezvous. (Laughter/Applause).

Col Strickland: Thank you, sir. Paul Novak, Southern Suburban Lion's Club. That completes the first list of names that I was given. Before we get to the cards, I don't know when I will see you people again, but I do have a problem with the court reporter over there I work with all the time, and if I don't give her about a ten minute break I'm going to be in trouble. So why don't we all take about a ten minute break and then start again.

(The hearing recessed at 2130 and reconvened at 2140, 11 May 1983.)

Col Strickland: If we could ask everybody in the back to please take their seats. Before I begin calling the names of the general public, I would like to give an opportunity to any more public officials that would like to say anything.

Spectator: Phil Rand is here for the city.

Col Strickland: All right, let's hear from Mr Rand.

Mr Rand: Good evening. I'm Phil Rand, the City Airport Manager, and evidently was real handy when Harold Derrali had to leave, so he asked me to say a word on behalf of the city working people. We workers and so-called managers; I'm sure that you are aware that the city has done its very level best since 1955 to support the Air Force in our community, and Harold Derrali, our City Manager, feels that we are still in that same delightful position, and we can continue that support. We've got the necessary infrastructure, sewage, water, fire department, police department, and last but not least, of course, a super airport, which is city owned in joint use by the city and the United States Air Force. We would certainly love to have you come back and join us. (Applause).

Col Strickland: Any other public officials?

Mr Sexton: I suppose you could count me in that category. The news media calls me other things. I'm Dick Sexton the Executive Director of the Klamath County Chamber of Commerce. I would also like to point out that the gentleman that preceded me is Colonel Rand, Retired, former Commander of Kingsley Field. I also happened to have shared a little bit of that glory in the past.

I've been asked by some of our Legislators, namely Senator Fred Heard and our Representative Bernie Agrons to introduce their letters of support into the record, which I will do (Atchs 10 and 11). The other thing I would like to point out. In the past few days, the Chamber has organized or done some random surveys of the public, namely through petitions, blue and white; the blue indicating support, and the white indicating non-support of the proposed mission. We had these petitions available at some of our major shopping centers and quite a number of our retail stores and other places of business. Also, at the Chamber of Commerce. I would think it significant that these are just random surveys and they were taken over a very short period of time. I have quite a list of the blue petitions of support; there is fifty names on each blank; as an indication of the support for the proposed mission. We have three white petitions, there's about probably a total of twenty names altogether on those. So I offer those as support, or

to me, as showing that ninety-nine and nine-tenths percent of the legitimate citizens of Klamath County really want the Air Force mission here and will welcome the Air Force mission. (Atchs 12 and 13). (Applause).

Mr Wright: I'm Ken Wright. I'm the Manager of the Klamath Falls Office of the Oregon State Employment Division. I can't offer a proclamation here, nor am I here to support or opposition of the reactivation of Kingsley Field. I was asked to prepare an economic report, which I have done. In my report, you will find that we feel that Klamath County is slowly starting to recover, but this recovery is going to cover a long period of time. We've had four recessionary years and it is going to take many years, or a few years to get over this recessionary period. We also found that this four years acted adversely on the economy of Klamath County. We have found and believe that we have lost over one thousand jobs in Klamath County because of our economic problems. We also found that in 1982, the unemployment rate stood at fourteen percent. In the 1980 to 1982 period, the unemployment rate stood at twelve percent. This is well above the state and national averages, of either the state or the nation as a whole.

The report does give some statistical information and I will leave this with the recorder so that the information will be

available to you. Thank you and welcome. (Applause). (Atch 14).

Col Strickland: Thank you, sir.

Mr Ferguson: Colonel Strickland and the entire Air Force team, my name is Earl Ferguson. I reside at 908 Loma Linda and I am Superintendent of Schools of District Number One and District UH-2; commonly referred to as the City Schools. I represent the two large high schools in the immediate basin, as well as the elementary schools in the area.

As each of you know, as does the Air Force as a whole, nothing is more important nor more precious to a company moving into an area than the schools to which it will be sending its young people. I'm here to testify and to tell you that the schools in the Klamath Basin are equal to, or superior to, schools throughout Oregon, Idaho, California, Washington, or any other area where you might be looking at putting an Air Force installation.

We have a wide range of curricular programs, from the academic to the specialized to the extracurricular. Our students scored well above the average, not only for Oregon, but for the nation, on standard scores and on the well publicized SAT scores. Six students from our current high schools are recent National

Merit Scholarship winners, which is a much higher percentage than you normally would find with the number of seniors from the Klamath Basin. Our programs for students are truly outstanding.

From school buildings to space, it is always a main concern. We have adequate space currently to handle up to six hundred new high school students, and within the eight elementary schools which I supervise, we could handle an additional four hundred elementary students with little problem.

In addition, at the conclusion of the current year, we will have a sizable sum of construction dollars from a three year serial levy voted by the public purposely to expand schools as the need arose. Related to buildings, this community would not be asking the Air Force for construction dollars for school buildings.

The community and surrounding area of Klamath Falls wants good schools for their children. They demand good programs and teaching from the professional staffs, and they have been willing to support good programs with their tax dollars. We are prepared, and we would welcome the return of the Air Force to Klamath Falls, and we believe your Air Force and civilian personnel would be pleased with the educational programs available to their children. Thank you for the opportunity to testify. (Applause).

Mr Conroy: Good evening. I'm the other part of the educational system in the public sector. I represent the Klamath County School District which has seven thousand students in its membership, and we are the ones that house the military most often because we have Falcon Heights, which is adjacent to the housing project at Henley, and in the high school, which also serves that need very well.

I think perhaps I may have been up-staged by a second grader this noon. It is my understanding that he showed up with seven tee shirts that were blue, and four shirts that were blue, and socks that were blue, and shorts that were blue, and a face that was blue. But I think that the message that I wanted to speak to you about is that we like the military in the Klamath County School District, and the military has made a great deal of contribution to us.

The young people who come to our schools have many experiences, and they share them with ours. Ninety-nine percent of those we like, one percent we don't. We don't have very many military brats, in your terminology. We want to tell you that we truly like the military and we think that in the past they have liked us. We, too, want to tell you that our schools are good. In other words, we have one of one hundred and forty-one of our nation's presidential candidates. One of two in all of Oregon

is a graduate of Henning High School this year, so we too, share in those merit scholars, and so on. So we take a great deal of pride in the fact that we do have a good system and we like the military and we would welcome you to Klamath Falls. (Applause).

Col Strickland: Sir, if we could get you to leave your name and address for the record.

Mr Conroy: Yes, I have a name. I am Jim Conroy and I live at 3814 Donneville. I'm Superintendent of the Klamath County School District.

Col Strickland: Thank you, sir.

Mr Smith: If you don't mind, Colonel, we will remain on the educational theme for a minute. My name is Bill Smith. I'm Dean of Academic Affairs at Oregon Institute of Technology. My address is 1011 Bristol Way. I had the opportunity of giving testimony before some of you good people on September 11th. We, at OIT, at that time felt very strongly in support of the Air Force program at Klamath Falls. Since that time, we feel even more strongly about the program.



First of all, we've had the opportunity on the part of some of our faculty, to review your impact statement. I would like to say it's commendable. That was a fine job. And those who haven't had the opportunity would be well appraised to read it, and learn a great deal of history of the scientific development of this area.

I want to be very brief and just call to your attention some things that may not be in the uppermost part of your mind. First of all, we at OIT feel that we are an integral part of the Klamath Falls community, and of Klamath County. We have strongly supported economic developments and will continue to do so. We feel this program would have a very positive impact.

We are a polytechnic institute. We're the kind of college that relates very well to the type of program that is being proposed on the part of the Air Force. We are a fully accredited institution with a national, and in some cases, an international reputation, in the area of polytechnics.

We have great strengths in our faculty, in our equipment, in our facilities, and in our mentality, that could be used as a resource if this Air Force program is located in Klamath Falls. We have degree programs that are not only regionally, but nationally accredited by all of the appropriate accrediting associations in the area of electronics engineering technology, computer systems, engineering technology, industrial management, and other degree

programs that relate very closely to the mission that you would perform. Now, while nationally college enrollments have been declining, they have also been declining in the State of Oregon. At the Oregon Institute of Technology, last fall, we had the largest class in the history of our institution. Our enrollments for next fall are exceeding those in excess of forty percent. I can assure you, however, that the Air Force personnel, the dependents, the civilian employees, would have an opportunity to pursue degree programs at our institution, to use our institution for research, to take advantage of the cultural and intellectual activities that this institution has brought to the Klamath Falls area.

We strongly support your being here and we hope to greet you soon. Thank you. (Applause).

Col Strickland: The next card I have here is for Elsie Passien; I hope I pronounced that correctly. I have a card here for Andrew Gigler.

Mr Gigler: Good evening ladies and gentlemen. I'm honored to be here with all of these experts. My name is Andrew R. Gigler, 4230 South 6th Street, Klamath Falls, Oregon. Now, as we get into the expert part of this, I was reminded the other day --- a fellow

was telling me the definition of an expert; it was a gentleman that knew more and more about less and less and knew absolutely nothing about anything. Now, I was down to --- in business down in Las Vegas in the fifties and I thought it was real great to be a part of the --- to do business with Nellis Air Force Base, and then do business out there at Donkey Flats where they were setting off the atomic bombs. In fact, I witnessed the setting off of many of them. I notice that most of my friends and acquaintances down there passed on, and most of them were younger than I was.

Now, I just took this out of yesterday's paper: Atomic Fall-out Decisions Months Away. Now, I'm talking about this radiation. This is coming up thirty years later and is just one of many millions and millions of dollars worth of lawsuits, this particular lawsuit that it had reference to was held in Salt Lake City because it had to do with people far away from this installation.

But I have about five little things I would like to bring up. In the past, I don't know of anytime, or anything that I've been wrong. I guess certain people have said I've been wrong. Now, war today is infeasible. We're going to be bombarded with microwaves and there is no safe dosages of microwaves. The Air Force is only stating that they cannot predict the long term effects on human health. Number five, after the installation is established, there will be very little contribution to employment. Thank you very much, gentlemen. (Applause).

Col Strickland: Mr Norman Holliday, President of the Jefferson Square Merchants Association.

Mr Holliday: Norman Holliday, 1118 Sequoia, Klamath Falls. And as you had on your card there, I'm the President of the Jefferson Square Merchants Association, and we are looking forward to your contribution to our community. We feel that inasmuch as the Air Force will be in our area, it will be enlightening and brighten our chances in the retail business. We are hoping that we can put more of our people to work, as well as the people who come with you, and we look forward to that very much. Thank you. (Applause).

Col Strickland: The next card I have I believe spoke before. Mr Lloyd McClure, President of the Klamath Board of Realtors. I'll probably have some duplications between my list and the cards, if you would bear with me. Danny O'Neil. Is Mr O'Neil here?

Spectator: They've left.

Col Strickland: Bob Beach, Klamath Falls, Oregon, Beach Jewelers.

Mr Beach: My son, Dan, whose card you will come to soon, asked me to speak on his behalf also. Our two comments are from the Downtown Merchants' Association, and myself as a citizen: you all come.

Col Strickland: Mr Jerry Wells of Klamath Falls, representing the Shasta Plaza Shopping Center and the Town and Country Shopping Center.

Mr Wells: As Manager of those two properties, I would like to enter into the record two letters from the owners of those two properties. They are very brief and I will read quickly in the interest of time.

From the Shasta Plaza Shopping Center. As the owner of that property in Klamath Falls, I would like to welcome you to the community. I feel that the Air Force's move to Kingsley Field will greatly benefit both the Air Force as well as Klamath Falls. The strategic location would be a great asset for the over the horizon backscatter system. Kingsley Field presently offers many of the facilities needed by the Air Force.

The benefits to Klamath Falls are innumerable. This community is in dire need of diversifying its employment basis. As the past record indicates, the community of Klamath Falls has

always supported the Air Force; and this time is no exception. We hope that our community will play a role in the defense of our country. You have my total support in your move to Klamath Falls. (Atch 15).

I have a similar letter to read into the record for the Town and Country Shopping Center. As owner of the Town and Country Shopping Center and Cedar Gardens Apartments in Klamath Falls, I would like to personally welcome you to our community and extend my full support of the Air Force's plans to locate the over the horizon backscatter radar system at Kingsley Field.

The Klamath Falls area has been economically depressed for some time now due to the lack of diversification in the economic base. An installation of the type you are proposing here in Klamath Falls would help tremendously toward this diversification. I feel that Kingsley Field offers many of the facilities needed for your operation and that our community is extremely supportive of your program. Kingsley Field was once a very viable military base and would like very much to see this operation returned to our community.

Again, I offer my full support and highly recommend that the entire over the horizon backscatter radar system be installed in the Klamath Basin. (Atch 16).

As owner of a property management and real estate firm here

in Klamath Falls, I would also like to express my desire to have you back. Thank you. (Applause).

Col Strickland: Thank you, Mr Wells. Eva Cook of Klamath Falls.

Mrs Cook: I was going to speak, but I think that everything I was going to say has already been said.

Col Strickland: All right, thank you, Mrs Cook. This might be a repeat. Mr Ed Saunders of the Marine Corps League.

Spectator: It's a repeat.

Col Strickland: I believe this is too, Ken Wright, Manager State Employment Office.

Spectator: Right, that's a repeat.

Col Strickland: Ted Paddock, a mobile home dealer, retired Air Force.

Mr Paddock: My name is Ted Paddock. I reside at 2040

Lakeshore. As a former blue suiter coming to Klamath Falls about sixteen years ago, I can personally testify about the warm heartedness and the friendly atmosphere here because I got that kind of treatment sixteen years ago and I'm still here. While I was in the Air Force, I had the privilege of having the duty of maintaining the radar equipment and the computer equipment that now runs in the Sage Center, or at that time, did. I hear a lot of malarkey about what this radar radiation is going to do; is it going to kill you, what is it going to do? During that ten years, I had a radioactive detector that I carried around my neck at all times during that ten years. I was in the proximity of that equipment all of this time, personally touching it, maintaining it, and my family and I lived during this ten years, sometimes as close as four, five, six hundred yards. At all times, I had that radioactive detector in my possession. I had it read many times and at no time did I get any reading from it. So if there was going to be any type of danger, that close proximity that I had during a ten year period, which started twenty-three years ago, surely would have shown up. We welcome you to Klamath Falls. (Applause).

Col Strickland: Mr Dan Brown, Klamath Falls.



Mr Brown: Gentlemen, I'm a member of an old pioneer family here in Klamath Falls. Our people came here in about 1891. I would like to express the fact that the old families here, the cattlemen, lumber people, in this area that are pioneer citizens of this basin, welcome you. We would like to see you here. Thank you. (Applause).

Col Strickland: Mr Fred Brown, Bonanza, Oregon.

Mr Brown: Actually, I'm formerly from Fort Klamath, where Dan grew up as well. We're cousins. I speak to you this evening, however, as a country lawyer. Grew up on a farm, born and raised there, and in my law practice, primarily represent agriculture issues.

Col Strickland: Excuse me, Mr Brown, but that's my line. (Applause/Laughter).

Mr Brown: Well, you can, through reciprocity, join our bar. I speak to you this evening as Vice President of a group called the Organization for Better Legislation to Protect Agriculture. We use that as my line tonight. The group consists of about forty different farmers and ranchers throughout the Klamath Basin area,

representing about thirty-five thousand acres of farm and ranch land. The group members, farmers and ranchers throughout this basin wholeheartedly support the location of your project in Klamath Falls. I'll cite two reasons here real briefly. There are both tied together and they again come back to economics.

Now, originally I understood that we were to have ten minutes this evening and I was going to take on the United States Government and military just for a moment, primarily in jest. But many of us in agriculture are still mad about that Russian grain embargo (laughter). We're still trying to recover from that, or at least the agriculture economy has not been back to the level it was prior to the embargo. As a result we have a depressed farm economy here in this local area, and as a result, members of my family and members of many other farm and ranch families, are required to work outside of the farm and home. As a result, in the Klamath Basin, anyway, they are required to compete with those who are unemployed from the depressed timber economy and distressed industries.

So, what we would like, obviously, is for you to help us revitalize our economy, i.e., give my wife a job (laughter). That is in jest; I'm not married (laughter). However, we would hope, too, that with the revitalized local economy, we will have an increased stimulated outlet for local livestock and farm produce.

Finally, some might argue that the increased air traffic that may result at some time would be damaging to livestock production. There is at least one member of our association who is willing to testify, bring charts, show graphs, to illustrate that even during the heighth of the use of Kingsley Field for military Air Force training and flying the jets over the air traffic pattern, the pattern is such that it went right over his livestock feed yard. Again, he'll bring you those charts that will illustrates that with the ceasing of flight of those military aircraft there was absolutely no change in the performance of his individual livestock in terms of weight gain.

So, as a sidelight, I would hope that there would be some increase in military --- or in commercial air traffic. I have been having trouble making connections here locally to some of my law practice appointments in other parts of the country.

The bottom line, the Organization for Better Legislation to Protect Agriculture, wholeheartedly supports your thoughts of coming to Klamath County, and we look forward to your support. Thank you. (Applause).

Col Strickland: Thank you, Mr Brown. Don Rohr.

Spectator: He left, sir.

Col Strickland: Okay. George Kovich, Regional Vice President and General Manager of Weyerhaeuser Company.

Mr Kovich: Good evening, gentlemen. Welcome to Klamath Falls. I'm George Kovich, Vice President and General Manager of Weyerhaeuser Company's Eastern Oregon Region. Weyerhaeuser Company is the Klamath Basin's largest private employer, and has been a part of this community for the last fifty years or more.

Weyerhaeuser Company supports location of the over the horizon backscatter radar, and supports the mission at Kingsley Field, for two reasons: First, we support a strong national defense of which this defensive warning system is a vital part. Second, location of the mission here will be a strong and positive force for the local economy.

We believe the negligible negative impacts cited in the Environmental Impact Statement are far outweighed by the positive economic impacts. If one considers this, we are just beginning to emerge from the worst recession since World War Two, a recession in which the forest products industry was among the hardest hit.

Klamath County's unemployment rate has been the worst since the 1930s, about fifteen percent of the work force. Unemployment has had a compounded effect on local government because of the loss of revenue from timber receipts. This, in turn, has thrown an

additional burden on the local taxpayer to support vital services such as schools. Wood products is a cyclical industry, and the cycle we have seen will be repeated again. Diversification of the basin's economy, now dependent mainly on forest products and agriculture, is essential to minimize these fluctuations.

The OTH-B system will boost our economy in itself, and it will also serve notice that the area is in business for diversified industry, including high technology. This giant step forward for diversification of the Klamath Basin economy also makes good sense for the Air Force and the national taxpayer. Kingsley Field is here and operational; there is ample adequate housing; and we have a trained, available work force.

A final note on the environment. Our company is the county's largest private landowner, with a highly productive tree farm supporting our manufacturing operations. We have worked with the Air Force on land use and access matters in the past, always on a cordial and cooperative basis, and we look forward to doing so again. It is wholly compatible with our tree growing operation.

We strongly support location of the mission here and hope our neighbors will do the same. Thank you. (Applause). (Atch 17).

Col Strickland: Ms Mary Taylor.

Mrs Taylor: I represent local farm wives. My husband and I have lived here all of our lives; I was born here and so was my husband, and we would like to know that we grow the best potatoes in the United States, right here in Klamath Basin. We would like your personnel to partake of those potatoes by moving here. My formal letter is a little bit different than that. I would also like to state that the reason a lot of farmers are not here tonight is because they are still out planting. We're trying to get our crops in; we've had a little bit of adverse weather also. They are not here because they are busy.

My husband and I, as I stated before, have lived here all of lives. We support the location and installation of the west coast over the horizon backscatter radar system at Kingsley Field. We do not feel this defense system would have any significant environmental impact or be detrimental to agriculture in any way.

We invite the military people affiliated with the proposed defense system to be part of our community. Thank you. (Applause). (Atch 18).

Col Strickland: Mr John Ault. Mr Richard Quirk. Mr David Taylor. (No responses from Mr Ault or Mr Quirk.)

Mr Taylor: I am David Taylor, and I live here in Klamath

Falls, and I'm a native of Klamath Falls, and a parent, and a member of a long time family. I think I may have the dubious distinction to be the first to make a statement in opposition to the over the horizon backscatter. I do so; I have objections and concerns because contrary to some evidence there is a possibility that there will be hazards to the health of the people living in this area. There has not been adequate proof that we would not be victims of the effects similar to those which have occurred in other parts of the United States when defensive systems have been either tested or installed.

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Furthermore, the installation of the over the horizon backscatter would not make us here, or other Americans, any more safe and perhaps even leave us in a more dangerous and vulnerable position to a nuclear attack, because although the OTH-B appears to be a defensive system it supports our offensive first strike capability. Klamath Falls might, therefore, well be a priority for attack by aggressors in the event of a nuclear war. Thank you. (Applause).

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Col Strickland: Thank you, Mr Taylor. Mr Samuel L. Weber-Han.

Mr Weber-Han: I'm Samuel L. Weber-Han. I live at 4273

Bristol Avenue in Klamath Falls. I'm just a country preacher, since everybody seems to be proud to be from the country. We'll forget the fact that I came from Chicago. I want to object to placing the OTH-B, not just in Klamath Falls, but anywhere, for moral and practical reasons.

The EIS, and the Air Force officials, admitted that this facility is primarily aimed at tactical rather than strategic targets. In common language, this means that we are looking for aircraft and slow flying targets rather than intercontinental nuclear missiles. I doubt that most Klamath Falls residents really realize this.

The famous military destroyer, General Littleout, often commented that the great fault of generals is that they spend too much time preparing again for previous wars. OTH-B seems to me to be an example of this.

More importantly, I challenge this facility on moral grounds. Jesus Christ tells us to live a life of reconciliation, peace, and love, in such diverse scripture as Matthew 5:9, Matthew 6:1, and the Twelfth Chapter of Romans, and literally dozens of related passages.

I do not challenge the personal convictions of individual members of the military. I believe them to be sincere. But I do assert that all war is sinful and that preparation for war is



equally sinful, and I do not hold this conviction alone. But as a member and an elder in the Church of the Brethren, my denomination has historically, and continues, to oppose war, military service, conscription, and the use of tax money for military purposes.

I mailed you a lengthy statement. I want to close though with this one thought from General Dwight D. Eisenhower. He said: Every gun that is made, every warship that is launched, every rocket that is fired, signifies in a final sense a theft from those who are hungry and are not fed, from those who are cold and are not warmed. This world in arms is not spending money alone. We are spending the sweat of our laborers, the genius of our scientists, and the houses of our children. Thank you. (Applause)

Col Strickland: Thank you, Mr Weber-Han. Mr Doug C. Atkins, Klamath Falls. Russell Wyatt. (No response from Atkins.)

Mr Wyatt: Russell W. Wyatt, 1825½, Klamath Falls. I would just like to say, sir, that you may call me whatever you like, but we all know that you can call a lot of people a lot of things through a smile.

I think that there is some viable concern that has been addressed here tonight. Once again, the trade-offs of the economy

versus the environmental impacts have been brushed aside. As each of our honored speakers have stated, jobs are the underlying and most attractive aspect of this system. In reality though, the economic impact will be negligible, if not totally absent.

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We have heard testimony of the environmental impact of this system. These matters have not been effectively and efficiently researched. No one knows what effect this system will have on the people and youth of this city. If something negative occurs, who will be held accountable for it? Will you come back and answer the questions of the mothers and fathers? Will the Air Force assume the medical bills of those affected? I question the cross-sectional aspects of those studies chosen by our Air Force appointed corporations, and our learned economists and engineers.

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I am a peaceful loving citizen of these great United States. In this great country I am allowed to speak, and here I am exercising this right. Freedom is lost if we blindly accept a less than adequate answer by our leaders. I implore all of us to think of the trade-offs; negligible economic advances versus a deteriorating country-side which we dearly love; a prime target for the opposing forces to seek and destroy in order to obtain a decided immediate advantage; and the possible health impact on our citizens.

Until all aspects are considered, please do not put the

system in our backyard. Today, I say hello, but I will not be a willing advocate for you to be back tomorrow until these concerns are given a concrete action. Respected gentlemen, learned experts, thank you for allowing me this opportunity to speak and voice my strong opposition to the location of this shamefully expensive and ecologically altering system. Thank you. (Applause).

Col Strickland: Thank you, Mr Wyatt. Mr Gabriel Gomez.

Mr Gomez. Thank you. My name is Gabriel Gomez. I live at 407 North 9th. I have just a very brief reading by way of a note that addresses two of my concerns regarding the over the horizon backscatter radar program. This was taken from some material by Paul Brodeur, a writer for the New Yorker; a series of articles that appeared recently in the New Yorker, and then became a book. In the reference it refers to Pave-Paws, which is a type of radar that has been used elsewhere in the United States and this is some research that has been done, and I quote: In March 1976, the Air Force Systems Command at Hanscom Air Force Base near Boston, issued an environmental assessment on the Pave-Paws system, which said that there would be no serious adverse, environmental, or biological effects from the radar. In addition, the Air Force assured officials of the town surrounding the proposed

radar site that Pave-Paws would bring jobs and income to Cape Cod which had a high rate of unemployment. What the Air Force did not tell these officials, and what is conveniently omitted from the assessment, was the fact that eight months earlier the authors of Tri-Service BioEffects Research Program, who included Colonel Godden, of the Air Force, had admitted that there were essentially no data on the biological effects of phased array radars such as Pave-Paws.

I oppose the over the horizon backscatter radar on moral and religious grounds. My Christian faith does not allow me to put my trust in weapons of mass destruction, nor in supposedly defensive systems, that can lead only invariably to their use.

I've spent a good deal of my life and a good deal of my time working to make this community and this world a good place to live. Militarism and preparation for war invalidate all of those efforts. Thank you, gentlemen. (Applause). (Atch 19).

Col Strickland: Thank you, Mr Gomez. Mr Jim Conroy.

Spectator: He's already spoken.

Col Strickland: Okay. I believe this is a repeat. Mr Larry Holverson of the Linksville Kiwanis Club. Mr Pat Holman.

Spectator: It's Mrs Holman.

Col Strickland: I'm sorry; Mrs Holman.

Mrs Holman: The hour is late, and I think you're great.  
Hurry back. (Applause).

Col Strickland: Okay, thank you. Mr Bob Kennedy, Klamath  
County Chamber of Commerce, Government Affairs Committee.

Mr Kennedy: Good evening. My name is Bob Kennedy, and I  
live at 605 Hillside here in Klamath Falls. I am a Past President  
of the Klamath County Chamber of Commerce and tonight I speak for  
that body as a current member of the Government Affairs Committee.

We do support the concept of the over the horizon backscatter  
radar and we believe the best location for the operation and main-  
tenance center is Kingsley Field. We support the system because  
it is obviously needed as an early warning defense system. With  
its installation any enemy will realize that we cannot be attacked  
without warning, such as happened at Pearl Harbor. We support the  
system because it appears that we do have something of a gap in  
our defense in Oregon, and this might deter an attack in this area  
as well as the rest of the nation.

We support this system because it is a defense tool, and with vigilance we can defend our country, and that means the defense of some of the rights we take for granted and sometimes abuse, like our right to assemble and to speak here tonight; like our right to redress of grievances, and our right to prayer and the choice of our own religion. These are just a few of the freedoms that we will be defending.

We support the concept because the Environmental Impact Statement states, and we believe, there would be no noticeable impact in this area, or the Christmas Valley area, where the transmitter will be located. The high desert area seems to be an excellent choice for the transmitter because of the low value desert-type land, noticeable lack of vegetation, and wildlife, and the very, very low density population.

We support the location of the operation and maintenance center at Kingsley Field. Geographically, it seems to be the best location, and it would appear that housing, both Air Force and private, is ample, as well as other support facilities.

We appreciate the Air Force. They have been good community neighbors in the past and they have earned our respect. Just one example is the way they have always worked on our United Good Neighbors drive and always came in over their goal. Our community is basically a politically stable community that supports adequate

national defense and I believe the Air Force has always felt comfortable and welcome here. While planes won't be a big factor in the operation of the radar, we do have a fine airfield, courtesy of the Air Force, with low air traffic, and weather that allows nearly one hundred percent flying time.

And of course, we do support the project from a provincial standpoint. With over fourteen percent unemployment, even after many people have left the area, we do need jobs, and that means we've got a good, ample work force. If the operation and maintenance center will reduce that figure of unemployment by nearly one percent, we will welcome you with open arms. You will be visible. You will be appreciated.

I'm sure the over the horizon backscatter radar will be built and should be built, and we hope you select Kingsley Field for the operation and maintenance center. I think the community will cooperate in every way to make it your best choice. Thank you. (Applause) (Atch 20).

Col Strickland: Mr Phil Rand.

Spectator: He has spoken, sir.

Col Strickland: Okay. Peggie Eccles has spoken, I believe. Mr Lewis Langer, I think has spoken.

Mr Langer: No, sir.

Col Strickland: I'm sorry. Mr Langer of the Shasta Plaza Merchants Association.

Mr Langer: I'm Lew Langer, President of the Shasta Plaza Merchants Association. We're an association of thirty-seven businesses and I would like to say that we and our employees are very much in support of your placing the over the horizon backscatter radar system at Kingsley Field. Oregon, and especially Klamath County, is an economically depressed area because of our dependence on the lumber and housing industry. Although there has been some improvement in the lumber industry, we feel that it will never again employ as many as it has in the past. The over the horizon backscatter system would create many needed jobs at Kingsley Field, as well as additional support jobs in our community. We would also welcome the diversification of our economic base in this area.

Klamath Falls has many advantages for the Air Force, including favorable climate, lots of sunshine, and clean air. I sound like the Chamber of Commerce. The community is large enough to offer complete shopping; I would be remiss in not mentioning that; entertainment; and medical facilities, as well as excellent educational



facilities up through the college level with the Oregon Institute of Technology. The quality of life and outdoor activities are outstanding.

In closing I would urge that you consider Klamath Falls for basing of your total over the horizon backscatter mission. Thank you. (Applause) (Atch 21).

Col Strickland: Thank you, Mr Langer. At this time, I think we better take about a five or ten minute break and then we will finish up.

(The hearing recessed at 2230 and reconvened at 2240, 11 May 1983.)

Col Strickland: All right. The next speaker is Mr Ross Ragland, who is going to read a letter from Senator Bob Packwood.

Mr Ragland: Colonel Strickland and team members, Senator Bob Packwood's office asked me to give you this letter. In the essence of time, I will read just one paragraph. The selection of Kingsley Field as the only candidate site for the support base has my enthusiastic support. I am concerned that selection of a site other than Kingsley Field for the operations center would

result in a higher administrative and transportation costs. This would be due to geographic distance between the proposed transmitter and receiver sites, and the other three candidate sites for the operations center. In addition, location of the operations center, along with the support base, at Kingsley Field would avoid unnecessary duplication between the two commands. I would hope the Department of the Air Force's final Environmental Impact Statement would reflect these unique cost savings. Signed Senator Bob Packwood. And I would give my name: Ross Ragland, 1400 Pacific Terrace, Klamath Falls. (Atch 22).

Col Strickland: Thank you, sir. I'm having a little trouble with the name here; it looks like Wes Herbert.

Spectator: He's gone home.

Col Strickland: Don Ambers.

Spectator: He's gone home too, sir.

Spectator: Let's all go home. (Laughter).

Col Strickland: No, we'll stay until we're finished. Clinton Pierce, Central Labor Council.

Mr Ruffage: Mr Pierce did have to leave. I'm Sam Ruffage, President, Southeastern Oregon Central Labor Council. On behalf of the working people in Southeastern Oregon, I want to say welcome. (Applause).

Col Strikland: All right, thank you. Mr J. Dwight Russell, Paster, First Presbyterian Church.

Pastor Russell: I don't speak for any ministerial association. I don't speak for my congregation. I speak as a clergyman, however, and I would like to say that I'm one hundred percent for the selection of Klamath Falls as the location of the operations center, for several reasons, most of which have been mentioned.

While I believe Klamath Falls could benefit economically from its selection, I think there are more important factors. I believe the influx of personnel for such a center would add a great dimension to the life of our community. We have experienced a period of general exodus of population because of economic forces at work in our community; reduction of personnel assigned to Kingsley Field, as well as recession trends in the lumber and agriculture business.

At such a time, a community can become obsessed with self-preservation and become stagnant and ingrown in its educational

and cultural life. I don't want this to happen in Klamath County as it moves into its next century of life. I believe the challenge that this new operational base would bring to our area would bring a breath of fresh air into its cultural life, as well as its economic health. And in spite of the reactionary attitudes of some, for the most part this community can provide a good moral, social, and educational climate for an influx of a new group of people, and our community can benefit greatly from such a group made up, as it undoubtedly is, of differing racial and ethnic traditions that will make our lives richer and better. (Applause).

Col Strickland: Jerry Benson.

Spectator: I don't believe he's here, sir.

Col Strickland: Mr John P. Hurd

Mr Hurd: Good evening. My name is John P. Hurd. I'm a chiropractic physician. I live and practice in this town, and I want to make a couple of brief statements which I believe to be neither for nor against this issue, but rather neutral and sensible.

First of all, as had been said before, and based upon my own research, it is my feeling that there are no conclusive studies that show proof one way or another of any danger regarding the radio energy that would be transmitted from the transmitter. All the research that I read categorically states that there is need for more research. So, consequently, I would like to recommend that we take a conservative attitude and approach and undertake a pre-operation health study survey of the health in the surrounding areas for, if necessary, possible consideration and comparison at a later date so that we don't repeat the mistakes that have happened at other military installations and operations in the past where there was not such a pre-operation study undertaken.

Secondly, and more importantly, I have a personal concern for --- first of all, I want to say that I really respect my right to speak out and that's why I'm here today, and accept the fact that in certain parts of the world that opportunity is not presented to the population. My feeling for defense of that is the same as many people here. Nevertheless, I have a sincere concern for the growing militarism and military posturing in both the Soviet Union and United States, and the fact that preparation for war leads to war. In spite of the fact that this is a soft, supposedly soft defensive system, nevertheless, it has to be

viewed in the context of the fact that it is part of our national defense policy, which is changing from one of deterrence to one of first strike, where hair trigger is the rule, and computer error and false alarms are definite possibilities. In such an event, the ionosphere off which this radar would be bounced would become non-existent.

It has been said that ten percent explosion --- that detonation of ten percent of the current arsenal would wipe out three-fourths of the ionosphere, blinding all --- that is in the northern hemisphere, and that it would blind all mammals, if they didn't have some type of eye protection.

I would like to see five hundred million dollars, which is the estimated cost of this operation, spent toward reconciliation and mutual understanding amongst nations. Thank you. (Applause).

Col Strickland: Thank you, Mr Hurd. Kate Pinnell.

Spectator: She's left.

Col Strickland: Nancy Hathaway.

Mrs Hathaway: I don't represent anyone except myself. I'm a proud American; maybe from the old school. I'm a mother, I'm a

grandmother, and recently, a great grandmother. Being married to a twenty-six year retired Marine, I'm pretty well acquainted with the military policies and procedures and the things that the military does. I'm very proud of all the military, including the Air Force. Having lived here fifteen years, I was acquainted very much with Kingsley Field.

The military has always been an asset to every community that they have been engaged in. They help with national disasters they contribute to the school systems, they contribute to the economy, yes; but that is just a fringe benefit.

I like the idea of defense. My country is so dear to me and to my family. I know that there are some dangers associated with defense systems; however, the danger, when you put it alongside of what it accomplishes in this great nation, giving everyone of us the right to stand here and speak, even those that speak against it. If it wasn't for that defense system, where would we be? I heard one gentleman thank you for the right to speak here. That thanks doesn't go just to you, it goes to every American soldier, whether he is Air Force or Marine or whatever, who died defending this great nation; not just those that are here tonight. If it wasn't for them, would we be here speaking this way? They don't give the people in Russia, or in Yugoslavia, or in Czechoslovakia a chance to say whether they do or they don't like

this or that. I just wanted to say, each one of us do take up space and we do use natural resources. It is what impact we make on our future generations in the defense of the freedoms we have; this is what is important, and when you put that up against a few microwaves or whatever, there's just no comparison.

We love you, we miss you very much, and we want you back; hurry and make it soon. God bless you all; and I'm a Christian too. (Applause)

Col Strickland: Thank you, Mrs Hathaway. Robert Hathaway.

Mr Hathaway: I'm Robert Hathaway, retired United States Marine Corps, twenty-six years service. I want to welcome you back. It was a pleasure to have you here in September. I'm used to progressive technological advancement, because I watched it grow while I was in the Marine Corps. I just want to relay this information to others, who are not so familiar with what technology advancement really means. I was on Guadalcanal and I saw the prop jobs and worked with them. From then on, we came on to Korea; we had the Banshees, we had the Corsairs; we went from there to the A-4Ds, Crusaders, F-4Hs, and now you have advanced equipment and technology in aeronautics now that surpass all of those things.

None of those things could have contributed more than what



they have evidenced themselves, than what you are presenting to us today. If it wasn't for the progress, for the advanced technology these people here wouldn't be standing here tonight. I appreciate what you and the United States Air Force are trying to do for this country, and I appreciate what this county has been trying to do for the county and its population in welcoming you here. I heartily welcome you and I thank you for being here and listening to us. (Applause).

Col Strickland: Thank you, Mr Hathaway. Mr William L. Brooks. Again, I'm having trouble with handwriting; this looks like Don Starkweather. Is that close? (No response from Brooks.)

Mr Starkweather: That's it. I would like to welcome you here tonight gentlemen, and the time that you've put forth to have this meeting. My name is Don Starkweather, I live at 2007 Carlson Drive in Klamath Falls, Oregon. I've lived here for twenty-two, twenty-three years.

There are several things I would like to hit on, but there is not time. I agree with Ted Paddock for the fact that he served in the military. I served in the military for five years. I stood within twenty miles of every H-Bomb that went off in the South Pacific during the Korean War. I was exposed constantly to some

of the heaviest radiation you could possibly be exposed to, and all portions of the military was involved, from the Army to the Air Force, to the Marines, and we were there all the time being exposed. We wore our film badges; they were checked once a week. The radiation was extremely high in the area, but we were very safe from it at all times, and I was very confident that the military could handle that.

I am fifty years old, almost, and I'm a healthy person. My doctor tells me every year when I go in for a physical that if he was as healthy as I was, he would be tickled to death. What I am trying to get across is that, you know, some of this stuff I've heard tonight in opposition to this; I really don't think these people know what they are talking about. I think they are going on emotion. I support the military. I'm proud that I belonged to it, and am a citizen of a country that believes firmly in this kind of operation. I've lived here for twenty years. I've seen what the military has done in this area for our community and help, and I want to see you come back. And as was told by the educational assistants, my son is fourteen years old; he has done fantastic here in the school system. I hope that if he goes into the military some day that he will be working under people like you. I'm very proud of the fact that he will be exposed to this type of thing in the future.

I want to see you come back in here. I want to see the Air Force take a hold again in this community and show what they did in the past can be done again, only more advanced. And you have a prime educational system to draw from here. We have this fabulous college up here on the hill. We have people that run this community that care about human life. They are not going to allow something to go on in this area to destroy us or destroy our citizens. All I can say is that the sooner you get back here, the better it's going to be for this community for economic reasons. Thank you very much, gentlemen. (Applause).

Col Strickland: Ladies and gentlemen, that completes the cards I have here. I've been doing a lot of shuffling around and there is a possibility I could have lost some. Is there anyone who filled out a card, who was not called on? Yes, sir.

Mr Igou: I filled out a card.

Col Strickland: Okay, I'm sorry. What is your name, sir?

Mr Igou: My name is Dennis Igou; I-g-o-u. I filled out one of those yellow cards earlier and handed it in. What I would like to ask everyone of you gentlemen up here at the front here

is to make sure that there is a baseline study in this area of what the health is in this area right now before you bring in the system; and should you bring one in, maybe a year after that point, or a couple of years, you could make another study, and if --- you know, there is a book called The Zapping of America, and it talks a lot about electro-magnetic fields and stuff which you are going to be creating and our environment is already polluted a lot with it. What you are going to be doing is putting a lot more there.

There's a lot of children in this area. We see a lot of businessmen, we see a lot concerned patriotic blue clones, and we see a lot of people that support the money aspect. But we haven't seen any children up here, and it's the children around here that will be the most affected. They are the youngest; they have the most to lose. And we definitely want no part of your military schemes; both with nuclear weapons, with F-4 bombers or fighter bombers, or anything. So, just think about the children when you guys make decisions, and I know you don't, but you better start. Thank you. (Applause).

Col Strickland: Thank you, sir. Is there anyone else that I might have misplaced your card.

Mr English: I didn't fill out a card, but I would like to take about thirty seconds to a minute, if I could.

Col Strickland: All right, sir, go ahead.

Mr English: Thank you. My name is Ron English. I live at --- well, where I live right now is the back seat of my car. My mailing address is Post Office Box 7125, Klamath Falls. I'm one of the people who was affected by some of the Air Force reductions here at Kingsley Field. I'm a four year veteran of the Air Force, and seven more in the Air National Guard, for a total of eleven years blue suit time. I'm a hundred percent behind having the OTH-B system here.

I did hear one sensible suggestion, to me at least, tonight, and that is from some of the gentlemen that suggested the baseline health study. The cost of that would be a relative drop in the bucket compared to the total cost of the system being installed. I think it is something maybe you should consider looking at.

At any rate, I was affected about three years ago by the RIF out at Kingsley, when the Air Force pulled out. I have been unemployed, as a permanent employee, since then looking for a job. I've heard a lot of people say there would be very little economic

impact, but I feel if you create --- if the system comes in and you create even one job, it will work to the benefit of somebody in this community. We all know that there is a multiplier effect. Let's say we bring in three hundred military people, and not even hire one civilian at Kingsley. With the multiplier effect that exists; and I've heard figures anywhere from about one and a half to about five times, the number of jobs. If you bring a hundred military to Kingsley, you are looking at a hundred and fifty to five hundred jobs in the local area, which would not be filled by active duty military. That has got to work to the benefit of our community. So, come on in; we want you here. (Applause).

Col Strickland: Thank you, sir. That completes the speakers for this evening, so that completes the program. Before we close, once again, I just want to say on behalf of all of us sitting on this podium, we really appreciate the courtesy you've shown us here. I appreciate the courtesy and patience you've shown in this hearing tonight. I think it has been one of the finest representations of American democracy, to watch a bunch of citizens get up and express their ideas, various and different ideas, and I appreciate the courtesy that you've shown me and the courtesy that you've shown each other. If there is no more business to be taken up I think we will close it down for tonight. This public meeting is adjourned. (Applause).

(The meeting adjourned at 2300, 11 May 1983.)

2.3 Transcripts, Mountain Home, Idaho

The hearing at Mountain Home, Idaho, commenced at 1930, 13 May 1983.

Col Strickland: Ladies and gentlemen, if we could get started here. My name is Don Strickland. I'm the Chief Trial Judge for the Air Force, and I'm stationed in Washington, D.C., which accounts for the reason I'm enjoying myself out west here. In fact, I think I'll probably stall these hearings over a couple of days so that I can see some more of this beautiful country.

I have been assigned responsibility of conducting this public hearing on the draft Environmental Impact Statement which has been filed by the Air Force with the Council on Environmental Quality. Contained in the draft is a description of the proposed over the horizon backscatter radar system, commonly known as the OTH-B radar, and a detailed analysis of the probable impact of the system on the environment. Now, the OTH-B is a very long range, all altitude aircraft detection and tracking system, which will be fully explained to you in a moment.

Now, my role in these proceedings is simply to conduct the hearing. My past experience has all been judicial in nature, and although I don't have a wealth of knowledge about this system, I think we have the people here tonight who do have and can answer all of your questions. I have not made or given any legal advice

concerning this project, nor will I. My role is simply to conduct a fair and orderly hearing and to give everyone an opportunity to be heard.

The purpose of this meeting is really two-fold. First, is to provide you with the chance to receive information on the proposed action, which we will give you in the briefing, and to ask any questions that you might have. This affords the Air Force the opportunity to clarify their position, and it is really informational in nature for you. Secondly, is to provide you an opportunity to present your views to the Secretary of the Air Force on the environmental impact on your community which would result from the OTH-B radar program.

Now, the transcript of this hearing will be forwarded to the Office of the Secretary of the Air Force, who will use it in preparing a final Environmental Impact Statement, which is used in the decision making process. All formal statements and questions are being recorded verbatim tonight by Mrs Ann Gilmore, a qualified court reporter, and any written statements which you wish to present will be attached to the transcribed record and forwarded to the Secretary of the Air Force. In a moment, when we give the briefing, we will have an address there where you can forward any written statements which you wish to make, and they need to be in by the 10th of June.



At this time, I would like to recognize Lieutenant Colonel Kary LaFors, who is the Deputy Program Director of the OTH-B Program. He is the Project Officer for the Environmental Impact Statement. Very shortly, he will explain its nature and the anticipated environmental impacts of the OTH-B radar system.

Now, the ground rules are few and simple. At the end of the briefing, we will probably take about a ten minute recess and any of you who desire to ask any questions, at that time, we will have some cards here and we would ask that you write out your question and we have several different people that can answer them, depending upon the question, depending upon which expert we will give it to.

At the end of the question and answer period, each of you --- we will probably take another break, and then each of you who wish to make a statement tonight, if you would simply fill out a card and put your name and address, and if you are representing any particular group or company or anything, put the name of that; and each of you will have five minutes to make a speech or any presentation that you want. You are not limited by these alternatives. You can ask questions, make a speech, and forward something in writing. You can do any or all of that.

In addition, individuals who wish to receive copies of the transcript of this hearing and the final Environmental Impact Statement, are requested to so designate this on the card. A

reasonable charge will be levied for individual copies of the transcript supplied to the public, and the Environmental Impact Statement itself, will be sent at no charge.

Since this is a small group, I don't think we will need a microphone here tonight. So when I call upon you to make your statement, I wish you would stand up and state your name and address for the record, and if you think your name needs to be spelled out for the purpose of the court reporter, we would appreciate you doing that.

This hearing will be informal. It is not a court, and I think cross-examination of the speakers or members of the Air Force would not be appropriate, nor would argumentative types of questions or questions which are, in fact, statements be appropriate. You will have ample opportunity to make any statements after the questions. Now, if you want to make a written statement and do not have it ready, as I pointed out, you may mail it into us by the 10th of June.

I don't anticipate that there will be any problem tonight, as far as order. My job is to try to keep order, but I don't think it is going to be a problem. But I would like to state that we are trying to record these verbatim and I'm sure there are many of you out here who are, perhaps, for this project, and perhaps a lot of you who are against this project. I'm sure

whichever side you might be on, you all have very good reasons for believing it. I personally respect your opinion, whichever way you view it, and I would request that you respect each other and give the person who is speaking an opportunity to say what he has to say in the time that we've given him without any interruption.

At this time, I'm going to turn the podium to Lieutenant Colonel LaFors, who will give the briefing.

LtCol LaFors: I will go ahead and talk from here, and if you have any trouble hearing me if you would just raise your hands. As he said, I'm Lieutenant Colonel Kary LaFors. I'm the Deputy Program Director for this project. We are located at Hanscom Air Force Base, which is just outside of Boston, Massachusetts. Before I get into the briefing, I would like to introduce to you the members of the team we have with us.

Mr Raffa is also from Hanscom, from the Program Office. He is in the engineering division.

Mr McCluskey is at Hanscom as well, and is with our public affairs office. I would ask any news media people that if they have any questions to please contact Mr McCluskey.

Mr Steve Pierce is from California, from SRI International. That is the firm that we hired to do the Environmental Impact Statement, and he is here representing that group.

From Tactical Air Command is Major Poli. He is from Headquarters TAC, and as you may know, the Tactical Air Command will be the operating agency after we have completed and delivered this system.

The OTH radar. The objective is to provide surveillance and warning of aircraft approaching the North American continent. This is a chart that shows the outline of how we will do this briefing. First, we will talk about a description of the radar; then discuss the west coast planning; a few charts on the environmental process; and then we will take about a ten minute break after that before we start the questions and answers.

At the risk of some confusion, I want to use this chart and the next one to describe the system to you. The reason it might be confusing is because this is a line of sight radar, and we in the OTH program, are not a line of sight radar. I use this just to show you the difference. In the case of the line of sight, you can see that they are straight line, and are unable to accommodate the curvature of the earth. Consequently, there is some limitation, and in fact, aircraft flying in underneath the radar, which is the current system that we have today, can get as close as about thirty-five miles if they stay as low as, say, five hundred feet.

Forgetting that then; we are an OTH radar, which is an over

the horizon. We go over the horizon by sending signals up to the ionosphere. The ionosphere is about fifty to two hundred and fifty miles above the earth. Those signals are refracted down and then we become a down looking radar, and that, of course, gives us a much extended range. That down looking radar also comes all the way down to the earth's surface. The range of this system is, on the inside, five hundred nautical miles; and extends out as far as eighteen hundred miles; quite an increase in range.

To describe the system a little bit, it's first good to understand that there really are four major pieces to the radar. The first is the transmit antenna, the transmit site. The second is the receive site and receive antenna. Those are separate and are separated by about one hundred miles. The ionosphere is another part; it is a dynamic system; and the fourth piece is the operations center.

What happens then is that this signal is transmitted up through the ionosphere, back down where it hits a target. That target then will reflect some of the signal, come back up to the ionosphere, and back down to a receive site. You can see that that is quite a ways away and that those signals are probably very small by the time they get to the receive antenna. We are able to, however, where we have a greater computer capacity, to understand what those signals are in a real-time basis, and

detect, track, and correlate aircraft, unknown aircraft, from those which we might know to be in the area because of their flight plans.

This is some pictures of the experimental system that we had in Maine. Just to give you a little bit of history; we are an HF radar, high frequency radar. Those systems were developed right after World War II, so that the HF radar technology, in itself, is really not new. But the concept that we are using today to do real-time tracking and identification of aircraft has only been --- we've only been capable of doing that in recent times.

This experimental system was begun in 1976 and completed in 1980. We then did one year of testing on that, which was successful. As a result of that successful test, we took the briefing up to the Secretary of the Air Force, who was in agreement that we should proceed, and directed us to build an east coast site and a west coast site.

In talking about what we have here then; this is the transmit site in Maine for the experimental system. The antenna you see here is quite long. In fact, it approaches a little less than a mile. These are the transmitters themselves that are housed in this building, and this space out here in front of the antenna, for the experimental system, was a thousand feet. We

call that a ground screen. The next picture is a series of pictures of the receive antenna; again for this experimental system. We shut this down, by the way, after we completed the tests. We shut this down in 1981.

The case of the experimental system was that we had the operations center located with the receive antenna. Obviously, in the case of the new system for the east and west coasts, those will not be co-located with the antennas. The receive antenna is really quite long. It looks like a row of telephone poles. In fact that is about a mile long row of telephone poles. It has some wire screen behind it to provide the back screen. Again, the ground screen in front is about one thousand feet. These are the consoles that the operators use inside the operations center.

This shows you then the kind of coverage that we would expect to get from our system once it is fully operational. As I said, the Secretary directed us to proceed with the east and the west coast systems. We've awarded the contract for the first sector. We call this the initial operating sector. We awarded that contract last June to General Electric in Syracuse, New York.

Sectors Two and Three are to be awarded as options to them, probably late this fall. Sector One will be completed in 1986, and Two and Three will be completed about the same time. So that finishes up the east coast in '86.

For the west coast, we would look to award a contract with GE for all three sectors at once, and that would be in the 1985 timeframe; early '85, and those would be completed in 1987. The reason we have these dash marks around this south looking system is that we have not yet received direction to proceed with that, but we have been asked to plan a budget for it. Our planning shows us starting one year after we start the west coast system, so we can start in 1986 and be complete two years after that in 1988..

Just to show you that we have the continent covered, let me say a little bit about the two systems up here. Those are not part of the OTH-B program office. In fact, there are two separate program offices at Hanscom that are working on that. The first one is named Seek Igloo, and that is an installation of some up-to-date radars in Alaska to provide coverage up there. The next one; you might know about the DEW line. It was built in the fifties. There is a program now to upgrade the DEW line, which is called the North Warning program. These to the north are line of sight microwave radars, and you can see the coverage we get from over the horizon radars.

Talking now a little bit more about the west coast, I'll help you read this chart since you probably can't see it too well. This then looks at two candidate sites for the transmit antenna,



up here in central Oregon. The little town of Christmas Valley is here, and just east of that is a site called Buffalo Flat, and then the other one, Mean Rock. About a hundred miles from that; here's Klamath Falls, and down here in the Modoc Forest, not far from Alturas, California, are the two sites that we are looking at as candidate sites for the receive antenna. The receive antennas would be at either Rim Rock Lake or Lone Pine Butte.

This next chart shows the four candidate sites that have been nominated for the operations center. Mountain Home, as you are aware. McChord Air Force Base is another. Kingsley Field at Klamath Falls is another, and McClellan Air Force Base down at Sacramento, is the fourth candidate site for the operations center.

Taking a look then a little more closely at the kind of activities that we would expect to see at each of those. Going back again to Christmas Valley, we have transmitters. We have actually probably a need for less than that twenty-eight hundred acres, but we would expect to fence that for the transmitters. We would install a fifteen megawatt power plant as a back-up power plant. We will be using commercial power for normal operations. When we talk about the three antennas, that relates to each one of those sectors. Each sector is a sixty degree ---

provides a sixty degree fan. So there is one looking to the northwest; one to straight west; and one to the southwest. The transmit antennas, by themselves, are thirty-seven hundred feet long. We have extensions on those we call transponders that look at the ionosphere, which makes them about forty-two hundred feet long. Forty to one hundred and forty feet high; access roads; equipment buildings; and we would expect to have twenty-four people on the site at any given time. They would be there on a three day rotational basis.

The receive site is very much the same. We need less acreage, less power. Again, three antennas, roads, equipment building, the same amount of people to run that site on a three day basis. That is maintenance people, and security people.

The support center. There is only one site nominated for the support center, and that is at Klamath Falls, Kingsley Field. The people that operate and maintain the antennas themselves would be housed at Kingsley Field and drive out to those sites on this three day rotational basis. We really would expect to see a little bit fewer than that; two hundred and fifty to three hundred people for that support center. The draft Environmental Impact Statement shows the highest number that we would expect to go there so we could cover the maximum amount of impact.

You are probably more interested in this. There are two

facilities that we would expect to build in the operations center. The first is the operations center itself, thirty-two thousand square feet; and the second is a software support facility. That is a building that would house a lot of computer equipment that would be used to test any changes to the software, run those up to make sure that they are operational before we put them on the operational system itself.

The people to run that operations center run probably from three hundred to three hundred and fifty. Again, we've covered in the EIS up to four hundred, but we would not expect to see that many people at the operations center.

I don't want to go through all of these. The Environmental Impact Statement, as you have probably seen, any of you who have seen it, is about five hundred and fifty pages. It is quite thick. It covers all of these areas. Let me just touch on a couple of these. First of all, the radio frequency radiation, RFR. That really is the radiation that comes from the transmit antennas, which will be located in central Oregon. What we have done is make sure that any radiation effects that come from this system are within the standard; meet the standard of minimum radiation effects at the fence line. There is a new standard; it is one milliwatt per centimeter squared. We have insured that we are ten times less than that at our fence line. So we expect to have

no negative impact to any life surround the transmitters. Radio interference. We are an HF system. We broadcast from five to twenty-eight megahertz, close to the same frequencies as the ham bands. It is not the same frequencies used by radios, TVs, CBs. Those are the higher frequencies. VORs for airfields are located in higher frequencies as well, but there is the possibility of minor interference. The only cases we saw in the Environmental Impact Statement where there might be any problem is down at Christmas Valley and we will make sure that there isn't a problem.

For the ham operators, if there are any ham operators here tonight, it is worth pointing out to you that we do not broadcast on ham bands. We guard the ham bands and we don't broadcast on those frequencies. On the experimental system that we had in Maine, we ran that system for a year and there was no recorded interference with the ham operators from that system.

Just to mention a couple of other things. Obviously, I've mentioned the population influx. We expect to see about three hundred to three hundred and fifty people come to run this site. There will be some additional jobs for construction and some through secondary employment, possibly during the operation of the system.

I think the only other thing to mention, once again, not here in Idaho, but down where we put in the antennas, there are

a number of archeological sites that are in those areas. Our survey pointed that out. We would do one of two things with those. We would either avoid them or we would do a study, hire a firm to document them before we removed them to make sure that we were in compliance with state and federal guidelines.

This next chart then shows a schedule of work of our process. We released the draft Environmental Impact Statement on the 22nd of April. Any comments on that should be in by the 10th of June. We would then prepare responses to those. The responses would then be reviewed up through our command and up to the Air Staff. We would print the final Environmental Impact Statement probably in August, and then wait probably until early October to complete the Environmental Impact Statement. Our best guess, at the moment, is that the decisions to be made on the locations of the sites would be made in early 1984, and those are made by the Air Staff.

Generally, that concludes my briefing. The next chart shows the name and address where you can reach Mr Raffa. He is out at Hanscom. We made one mistake on the slide. This zip code is 01731, instead of 01730. We'll take a ten minute break. Let me ask you again, if you have any questions, we have pens and cards up here.

(The hearing recessed at 1955 and reconvened  
2005, 13 May 1983.)

Col Strickland: The first card here is from Mr John Bermansolo. I have a question I want to ask. Mr Bermansolo?

Mr Bermansolo: John Bermansolo, 1510 North 3rd East, Mountain Home. My main concern is that when this particular group met with us last fall here in Mountain Home, they indicated that they were going to send somebody here to make an on-the-spot investigation of the houses, the environment, make a complete study. We have learned that this was all done by telephone and it was very disappointing, primarily because the telephone calls were made to just a few people and you really didn't get a good cross-section and we feel that you didn't make a complete study of the area. In our particular case, we feel that we were short-changed on that particular phase of it. Now, we're not talking about what happened in the other places because we're not familiar with the facts in that area. I think, in all fairness, when this type of a study is made, you would do well to send somebody here and be able to talk to them. On something as important as this and as bad as we want this particular installation here, we feel it would have been far more apropos to send a group here if you have to, because we were led to believe that and was really disappointed.

Col Strickland: Which one of you gentlemen is going to

handle that one? Don't all speak up at once.

Mr Pierce: I'll handle that question. SRI, the firm that I work for, prepared the Environmental Impact Statement, and, indeed, for this particular statement we did not send field teams out to the four candidate sites. We felt that the work that we needed to do on this particular statement, the approach that we took, which was the same at each one of the candidate sites, was adequate for the scope of this effort.

Mr Bermansolo: My main concern is though, when the team was here they indicated that they were going to send somebody. We were waiting patiently all these months, waiting for somebody to show up so we could, you know, really give them a good report on it. As far as we can tell, approximately three people were called here in Mountain Home, by telephone, for information which we don't feel is a good cross-section.

Mr Pierce: I'm sorry that a misconception, or a miscommunication occurred; that, indeed, you were given to believe that a team would be sent out. I apologize for that miscommunication. As far as contacting people, I can assure you that more than three were contacted. I could essentially go back through

the records, and I can show that it was probably closer to twenty to twenty-five people.

Mr Bermansolo: In Mountain Home?

Mr Pierce: In the Mountain Home/Boise area, yes.

Mr Bermansolo: Now, looking at the report that you've got, at the different names, we couldn't find where you had called twenty-five here. I would like to meet with you afterwards and if you can show me twenty-five names in the footnotes I would certainly like to have you show them to me. Because we read the report, particularly interested in Mountain Home, and you don't have twenty-five names there.

Mr Pierce: Sure, I'll be glad to talk to you.

Mr Bermansolo: That's why I say I feel that with something as important as this, it was kind of mishandled and it wasn't done properly and I feel that you should take this information back and log it in, in that the information that we will be presenting you later was not there.



LtCol LaFors: Let me make a statement. I think that in defense of that, sir, I would state that it is their job, when we ask them to go and do the study, it is their job to go find out generally what the impacts are, and in the candidate sites for the operations center, it was determined that there would be no negative impacts, specifically in the housing market, by bringing in the additional people that would be necessary to operate the operations center. I understand you have some specific comments on some specific statements that were in the draft EIS, and I think we can address those later.

Mr Pierce: Let me mention also, that if, indeed, there are any comments about inadequacies of the statement, either given today orally or provided later in written form, they will go to the Air Force and then back to SRI. We will respond. In fact, each one of those comments will be included verbatim, and any letters will appear, in fact, in the final Environmental Impact Statement, and the response to those letters and comments will be cross-referenced in the statement itself so you will get satisfactory answers to all of your questions.

Let me amplify one other point too. Our analysis of, particularly, the socio-economic, if you want to call it that; impact it's really more of a benefit, for the four candidate sites for

the operations center, that at none of the sites, including Mountain Home, did we find any impediment to the location for socio-economic reasons, at any of these sites. In fact, the only negative thing we ever came up with was a couple of school districts in the Sacramento area that were a bit over-taxed, but we really found nothing within, certainly, Mountain Home that was a drawback with respect to the capacity of any services, facilities, or anything of that nature.

Col Strickland: Let's take the next question. Ro, do you have some there to answer?

Mr Raffa: Yes, I do. The first question is ---

LtCol LaFors: Could you speak up, Ro?

Mr Raffa: I'll stand up. The first question is, why can't the operations and transmitters be co-located as in the experimental system? The procedure for locating the transmitters is a very complex one. We need, as you saw from one of the briefing charts, quite a bit of space. It has to be fairly remote; we use a lot of power; and there are about twenty-five different criteria we use to select, after about a year's search, the transmitter

site. One of the requirements is that it is as remote as we can possibly get it from people. Co-location of the ops center with its three or four hundred people, and the transmitter site, just doesn't seem like a very good idea. Secondly, since we have to locate this place out in the "boonies," if you will, and there would be three or four hundred people, then how would we house them? Where would we put them? That would be a lot of construction. That's when we went to Tactical Air Command, who went to operating bases to locate the ops center. It simply is the cheapest way for the Air Force to build this system; the most convenient and the fastest in terms of scheduling. So that transmitter has to be in a remote location, and the ops center has to be at an existing base in order to do it the fastest and cheapest way. Does that answer your question? (No response.)

The second question is an easy one to answer. How long is the operation going to be in the area? The system is designed for a twenty year life, so the operations center will be operated for twenty years, or longer.

The danger of backtracking the system. I discussed this briefly with the gentleman who asked the question. I think the intent of that question is could the Russians, the Soviets --- let me get that accurate; would the Soviets be able to discover where we are? Since we are twenty-eight hundred acres or less,

the transmitter site, I don't think there would be much difficulty in locating us; they wouldn't need to backtrack; on the basis of our energy to see where we are. Again, anybody could do something like that, but I don't see why they would want to. After all, is the place secret? We're showing everybody in this room and all over just exactly where it is, and the environmental statement is in libraries all over and we show exactly where we are going to put things. So, there is no question they could do that, but they won't need to.

Okay, the last question that I have; is there any opposing forces with the ability to screen-out radar detection, such as the F-111 does? Well, I'm not prepared or able to discuss that, the 111 capabilities. But by screen-out can somebody avoid detection? I don't know how they could do that very easily, not in terms of the on-board capabilities of an aircraft. We get a reflection from the surface and the range of the radar would far exceed the capability of any electromagnetic ECM or ECCM capabilities that any aircraft could have, because we go out to ranges up to eighteen hundred miles. For aircraft to carry HF jammers, he would need two or three accompanying aircraft just to provide the power. So, no, I don't think that's possible. We certainly don't know of any technology that has that capability.

Mr Pierce: I have additional questions here: does the base in Oregon have to be reactivated, and at what cost compared to the Mountain Home site? The base in Oregon was scaled back a couple of years ago, but it is still an active TAC base. The present tenant is the Air National Guard. There would be need for construction at that site, and within the Environmental Impact Statement, it states the cost at something like twenty-nine million for additional facilities, which includes upgrading some of the housing, also reopening some dormitories, and other facilities that are not presently in use. The cost of additional facilities, renovating facilities, and so forth, at Mountain Home would be about fifteen million dollars; and it is really TAC that is doing a lot of the calculations as well as the engineering analysis as to what the cost comparisons are, which includes not just construction costs, but indeed, the additional support individuals, which would be payroll, as to how much would be required at each of the sites. There are a number of cost considerations that do come into play, construction is one.

LtCol LaFors: I have one, and maybe you will have to help me understand the question. If I don't answer it right, let me know. The question is: is the purpose of the briefing to soften the blow? We are here as a part of the environmental impact process.

The process calls for briefings when we find them useful or necessary, or someone asks for them. The release of the draft EIS was done on the 22nd of April. There is a forty-five day comment period that is a mandatory period, and it is the opportunity of the Air Force to go out and explain the system to the public during that time. We find that people are interested in the project, especially in those areas where it affects them, so we come out to do two things: explain to you what it is, and to hear your comments. Now, when we were here last fall, we heard your comments so that any concerns you had could be included in the draft EIS. We're out here now, after it is released, so that we can hear any comments you have about the preparation of that document.

Major Poli: I have a question here: will building maintenance in the operations center be contingent on the base maintenance staff or will a special group be assigned here? If so, will it be civilian or military? Will the special group be for security reasons? Nothing has been determined yet on the size of the maintenance force. I assume what you mean is building maintenance of the actual facility itself. The people in the building to operate equipment, it looks as of right now, will be all military. But the maintenance people, what I would think would happen is, if

you add fifty or sixty thousand feet to the footage on Mountain Home Air Force Base, you would have to augment the base Civil Engineering staff somehow. Whether it would be military or civilian depends on which shop they are in. It would probably be a mixture of both who would actually do the maintenance on the building. Does that answer the question? (No response.)

Col Strickland: Are there any other questions where we didn't get your card, or is there anyone who would like to fill out a card and have a chance to ask any questions?

Spectator: Sir, I made out a card.

Col Strickland: Right, but yours was a combination. If I don't have any more pure questions, we're going to get into the comments phase of it. This starts out with a question: We take exception to the statements in the report regarding rental housing. We have a written report to submit. Lee Wasmund. Lee, would you like to elaborate on that?

Mr Wasmund: I'm Lee Wasmund, W-a-s-m-u-n-d, 211 Sunrise Drive, Mountain Home. Sir, in going through the report regarding rental housing in Mountain Home, in several locations, three or

four specific areas, you question the availability of adequate rental housing possibly to meet the build-up if the ops center were to be built here at Mountain Home Air Force Base. The way the statements read, and the data in the report, and I'm certainly not going to read this report, but we members of the Chamber of Commerce Military Affairs Committee, take exception to the way of the wording of those reports, and to our knowledge, as Mr John Bermansolo said, there was no on-site survey regarding housing availability, not only in Mountain Home, but the Glenn's Ferry area, the Grandview area, the Bruneau area, as well as Boise. We do have quite a large number of people that work at Mountain Home Air Force Base who reside permanently in Boise, believe it or not, and commute on a daily basis.

So, with that, sir, I would like to submit this particular written report with our exceptions to those statements in your report regarding rental housing, and housing in general, at Mountain Home. Thank you, sir. (Atch 31)

Col Strickland: Do you want to give that to the reporter?

Mr Wasmund: I need to get him to sign it, sir. (Laughter). Before this meeting is over, you will get the copy of it.

Col Strickland: I have a card here from Mr Don Graham,



President of the Chamber of Commerce. Mr Graham, I originally said five minutes, but since I don't have any other cards for comments, you can have ten.

Mr Graham: I'm Don Graham, 835 North 12th East, Mountain Home. All I want to say is that we had done quite an impact study ourselves before --- after the first meeting we had here, and we had contacted housing, schools, the fire and the police department, nearly every facet that would be entailed in this whole operation. We have had nothing but good reports from all of them. I believe they were sent either back east, or to some address that we had. Other than that, I would like to say that on behalf of the Chamber, we support this facility one hundred percent, and we also support the area a hundred percent, even a hundred and ten percent, and we feel that this is an ideal location for it. Thank you.

Col Strickland: All right, sir. Anyone who didn't fill out a card who would like to say anything? Yes ma'am.

Spectator: I have a statement from Senator McClure.

Col Strickland: I'm sorry, I can't hear you. I need to

get it verbatim. Maybe you could come around just a little closer. You can even bring that dog with you.

Ms Hunsaker: My name is Diana Hunsaker, and I'm from Senator McClure's office in Boise, and he sent a letter in support of this facility and he has been following this for quite awhile and he feels that this would be a proper place to site this particular facility.

To the Honorable Verne Orr, Secretary of the Air Force. Dear Mr Secretary. We Idahoans have great pride in our military, especially the United States Air Force. We have always favored a strong national defense and have always taken pride in Mountain Home Air Force Base. I am pleased by the consideration of Mountain Home Air Force Base for the location of the operations center for the OTH Backscatter radar. There are a number of compelling reasons which cause me to believe that Mountain Home is the best possible choice for this installation.

In my view, Mountain Home Air Force Base would be the most cost effective place to site the OTH backscatter operations center. In terms of operational survivability in a wartime environment, Mountain Home's interior location, far from the sea coast, makes it the most survivable location available. The base is easily able to accommodate the new mission and this would be the most

inexpensive place for the Air Force to put the center. Excellent facilities, both on the base and in the neighboring communities, will provide services for additional personnel. Housing is abundant. There is less than one month's wait for on-base family housing and the homes are attractive and well-maintained. Off-base housing, both to rent and to purchase, is similarly plentiful, reasonably priced and appealing.

The area has more than enough capacity for all city services; sewer, fire protection, medical, and recreational facilities. The additional personnel who operate the new center can be assured that their children will have fine schools and a wholesome environment. The new operations center will be warmly welcomed by the civilian population of Mountain Home and Elmore County. The historical relationship between the base and the town has always been cordial and cooperative. It is no secret, the base is important to the town of Mountain Home. Because of this, the Air Force can be assured that the people of Elmore County will spare no effort in working with the base to make every member of the Air Force glad to be assigned to duty here.

So, for many reasons, I am sure that Mountain Home Air Force Base is an ideal location for the operations center for the OTH backscatter radar.

Now, Jim has not taken exception to your study. This is

his opinion. I will submit this for the record. Thank you.  
(Atch 32).

Col Strickland: Does anyone else have any comments?

Mr Schmelzer: Colonel, I'm Mike Schmelzer, 580 East 12th North, Mountain Home. I'm also President of the Elmore Chapter of the Apartment Owners Association. We see no shortage of housing in this particular area for the increased personnel if we were selected for this program. The building at Mountain Home has been steady. It was actually going on in this area far in advance of the rest of the state in the new housing just in this year. So, I see no reason to think that we would have a shortage of housing for our new personnel.

We have good units here in Mountain Home; excellent units for rental, and we try to keep them up and I think we do a good job of doing that. Also, you have probably heard several times, the cost for housing here in Mountain Home is surprisingly low for the area that we're in, and I don't believe that this is anything more than respect for the servicemen we have here. The people here have housing; have been here for quite awhile and the housing has been here for quite awhile, and consequently, we plan to keep our housing lower than the rest of the area. That

doesn't mean that our housing is substandard or anything else. It is actually very good housing at a very surprisingly low cost. Thank you.

Col Strickland: Thank you. Any other comments from the audience? Yes ma'am.

Mrs Wetherell: If I could please, sir. I have a letter from the Governor, that I would like to read.

Col Strickland: Would you like to come up here?

Mrs Wetherell: No, I may be able to read it from here. I'm Claire Wetherell, and I'm a State Senator from this District, 22. The Governor sent this letter to the Honorable Verne Orr, Secretary of the Air Force. Dear Mr Secretary; I am pleased to recommend Mountain Home Air Force Base for selection as the operations center for the west coast over the horizon backscatter radar system.

Both the city of Mountain Home and the State of Idaho have enjoyed an excellent working relationship with Mountain Home Air Force Base. The Mountain Home area has good resources to support a project of this magnitude. Their schools, transportation

systems, housing, and labor force are more than adequate to meet project needs. I also understand that selecting Mountain Home Air Force Base as the operations center site will result in substantial savings to the Air Force. For these reasons and because I believe the people of Idaho strongly support this project, I urge your favorable consideration of Mountain Home Air Force Base for this project. Sincerely, John V. Evans, Governor of Idaho. And I would give you this copy; the original, of course, was sent to the Secretary. (Atch 32).

Col Strickland: All right, if you would just give it to the court reporter. Are there any further comments? As I pointed out earlier, if anyone has anything they want to submit in writing before the 10th of June, this is the address to send it to. Sir, you have a statement you want to make?

TSgt Parker: Yes. I'm Tech Sergeant Ray Parker. I am stationed out here at Mountain Home Air Force Base, and I just have a word or two to say in reference to the support that the Mountain Home community does give the United States Air Force here at Mountain Home Air Force Base. I've been in for fourteen years and I have never been anyplace that has supported the Air Force or the Air Force mission as much as the Mountain Home

community has. If anybody doubts this, they can check the Air Force Times. I think the Air Force Times, about a year ago, stated that Mountain Home was the only Air Force community that gave an Air Force Appreciation Day.

Since I have been at Mountain Home, for about two years, I have been treated most royally in every respect, and I plan to make this my retirement community. I say that only to show you individuals here on the committee how much the community, the merchants, the Chamber of Commerce, actually does, in fact, stand behind the Air Force community here in Mountain Home. Thank you.

Col Strickland: Thank you, Sergeant. If there are no other comments here tonight; I have some information I would like to get, and it's of a personal nature, from what I've seen and heard here. I just want to find out how I go about getting admitted to the Idaho Bar. (Laughter/Applause). Ladies and gentlemen, if there is no further business --- yes, sir?

Mr Wasmund: Sir, we have our written report ready.

Mr Raffa: I would like to make a couple of comments. One is, that in terms of the environmental statement, that is intended

to be, and I use the word advisedly, somewhat pessimistic. It was intended to show the worst possible effect that the implementation of any program would have on the environment. Thus, the numbers we used, for example, twenty-eight hundred acres for the transmit site, is as high a number as we are, in the remotest possibility, likely to use. So that many of the statements in that document are somewhat pessimistic.

Secondly, obviously there are some differences as to how pessimistic we should have been, obviously in the real estate area, and that is the purpose of the draft and holding these hearings. As the Colonel stated, this is the place to show what we jointly find wrong with it so we can fix it. The statements that you have made will be appended to the document that actually goes forward, the final that goes forward; with the appended statements and the transcript of this hearing. I think that is all I have to say on that.

. Colonel Strickland: Thank you. Yes, ma'am.

Mrs de la Motte: I'm Ginger de la Motte. I'm here as a very interested citizen, representing American Legion Auxiliary, and Business and Professional Women's Club, and many organizations. I do happen to be the Housing Referral Officer out at the base,



but I'm not here in that capacity. I have just one question. I don't understand why the survey does not address the fact that there is a dorm that is going to be constructed, if the system is located here. Maybe I missed it, but I don't see anywhere where it gives credit for the number of people that would be housed in that dorm. It references only people having to live off-base. I think there is a comment in there about the worst circumstances that could happen would be that the people would have to live off-base.

69

You know, I just think that is really very, very negative, and I certainly can testify as to what Mr Schmelzer has said as President of the Apartment Association, because we have just such an outstanding rapport with the landlords in the community that this is just unreal. When he says that the rents are below the market value that's very true. And that has hurt us in the surveys, because it is not uncommon to see rentals go for fifty dollars less than what it should be rented for, and even higher; maybe seventy-five dollars under the market rate.

So, I would like to know why the dorm was never addressed.

Col Strickland: I think that is a partial statement and a partial question.

LtCol LaFors: I would just say that I think part of the

answer would be to repeat what Mr Raffa said; to take the worst possible case, and I guess in this case, the worst possible case would be that if for some reason that dorm weren't completed. But I think the statement, you know, rereading the statement that it is not so terribly negative, at least in my eyes. It, in fact, says that housing could be accommodated for the people and there really is no anticipated negative impact. However, we appreciate your comments, as part of the record, to emphasize the view that in practical circumstances, that will be completed and we'll even release any, if there happen to be any negative impact on housing.

Col Strickland: If there are no other comments, I think perhaps we will close this down. I just wanted to say how much I thank all of you for coming by tonight to participate in this proceeding. As I might have mentioned earlier, I normally spend my time presiding over criminal trials and I find this to be a refreshing change of pace for me.

I couldn't help but thinking a little bit seriously of another thing, when I first did these --- not to wave the flag a little bit, but I'm impressed by the fact that in the United States, we're getting ready to put up a weapon system and we have some kind of forum for discussion of this. I feel that probably in the Soviet Union, they don't go through this process

when they put something up, they just do it. I think your contributions, which have been made tonight, will be very helpful to the Secretary of the Air Force. Once again, thank you for coming. Thank you for your participation. If there is anything else you want to say, you do have until the 10th of June to do it. If there is no other business, this public hearing is adjourned. Thank you. (Applause)

(The public hearing adjourned at 2035, 11 May 1983.)

(This was the final in a series of three public hearings held on the proposed installation of the over the horizon backscatter radar system. This completes the transcript of those public hearings.)

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2.4 Attachments (Materials Submitted at Public Hearings)

Christmas Valley, Oregon--No attachments were received.

Klamath Falls, Oregon

- Atch 1 Proclamation, Project Air Force Blue Suit Day II, signed by George C. Flitcraft, Mayor, Klamath Falls, Oregon
- Atch 2 Letter from Rotary Club of Klamath County
- Atch 3 Letter from United Way of the Klamath Basin
- Atch 4 Letter from Klamath Basin Women for Agriculture
- Atch 5 Letter from Klamath County Chamber of Commerce
- Atch 6 Proclamation, Blue Suit Day No. II, signed by the Board of County Commissioners, Klamath County, Oregon
- Atch 7 Statement by Roger Hamilton, Klamath County Commissioner
- Atch 8 Statement by Ed Saunders, Crater Lake Detachment, Marine Corps League
- Atch 9 Statement of Larry Holverson, President, Linkville Kiwanis Club
- Atch 10 Letter from Fred W. Heard, Oregon State Senator
- Atch 11 Letter from B. Z. "Bernie" Agrons, Oregon State Representative
- Atch 12 Petitions in Support of Placing the Radar System in Klamath County (47)
- Atch 13 Petitions Against Placing the Radar System in Klamath County (4)
- Atch 14 Letter from Oregon Department of Human Resources, Employment Division, Klamath Falls Office
- Atch 15 Letter from Ehnisz Company
- Atch 16 Letter from Town and Country Shopping Center
- Atch 17 Statement from George Kovich, Vice President and General Manager, Weyerhaeuser Company, Eastern Oregon Region
- Atch 18 Letter from Mr. and Mrs. Ival Taylor, Malin, Oregon

- Atch 19 Statement of Gabriel Gomez
- Atch 20 Statement of Bob Kennedy, Klamath County Chamber of Commerce, Government Affairs Committee
- Atch 21 Letter from Shasta Plaza Merchants Association
- Atch 22 Letter from Bob Packwood, U. S. Senator from Oregon
- Atch 23 Letter from Klamath Dental Society
- Atch 24 Letter from Pacific Linen Supply and Klamath Basin Sheep Producers
- Atch 25 Letter from Thomas Associates, Inc.
- Atch 26 Letter from Klamath County Economic Development Association
- Atch 27 Letter from Klamath Yacht Club
- Atch 28 Letter from Certified Mortgage Company
- Atch 29 Statements from Antonio Souca and Denzo Igou
- Atch 30 Statement from Ethel and Bob Reynolds

Mountain Home, Idaho

- Atch 31 Letter from Mountain Home Chamber of Commerce
- Atch 32 Letter from James A. McClure, U.S. Senator from Idaho
- Atch 33 Letter from John V. Evans, Governor, State of Idaho.

PROCLAMATION

WHEREAS, THE CITY OF KLAMATH FALLS AND MEMBERS OF THE COMMUNITY HAVE WORKED DILIGENTLY TO OBTAIN THE AIR FORCE OVER-THE-HORIZON BACKSCATTER RADAR SYSTEM FOR KINGSLEY FIELD; AND

WHEREAS, THE RADAR SYSTEM WITH SUPPORT FACILITIES WOULD CREATE UP TO 1,000 NEW JOBS; AND

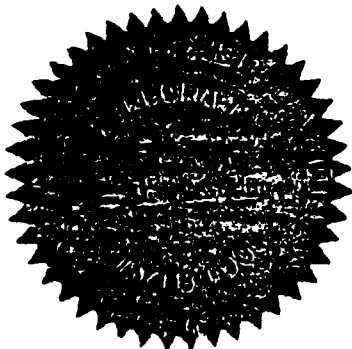
WHEREAS, THE RADAR SYSTEM WOULD PROVIDE A VITAL LINK IN THE NATION'S DEFENSE SYSTEM; AND

WHEREAS, MAY 11, 1983, MARKS THE PUBLIC HEARING PROCESS ON THE ENVIRONMENTAL IMPACT STATEMENT TO DETERMINE WHETHER KINGSLEY FIELD WILL BE SELECTED FOR THE WEST COAST OVER-THE-HORIZON BACKSCATTER RADAR SYSTEM;

NOW, THEREFORE, I, GEORGE C. FLITCRAFT, MAYOR OF THE CITY OF KLAMATH FALLS, OREGON, DO HEREBY PROCLAIM MAY 11, 1983, AS

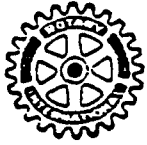
PROJECT AIR FORCE BLUE SUIT DAY II

AND ENCOURAGE MAXIMUM PUBLIC PARTICIPATION AT THE PUBLIC HEARING SCHEDULED FOR MAY 11, 1983, AT 7:30 P.M. AT MILLS SCHOOL AND INVITE EVERYONE TO WEAR BLUE ACCESSORIES ON THIS DATE.



IN WITNESS WHEREOF, I HAVE HEREUNTO SET MY HAND AND THE SEAL OF THE CITY OF KLAMATH FALLS THIS 9TH DAY OF MAY, 1983.

GEORGE C. FLITCRAFT, MAYOR  
CITY OF KLAMATH FALLS, OREGON



# Rotary Club of Klamath County

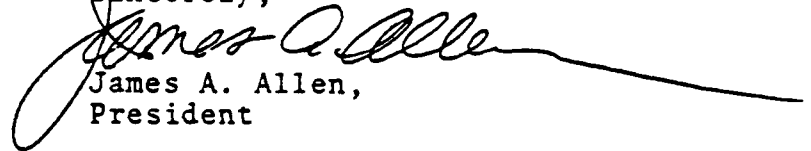
P. O. BOX 492

KLAMATH FALLS, OREGON 97601

May 10, 1983

The Rotary Club of Klamath Falls endorses the idea of location of the Over-the-Horizon Back Scatter facility and headquarters in Klamath County.

Sincerely,

  
James A. Allen,  
President

JAA:rb



**United Way**  
of the Klamath Basin  
Formerly United Good Neighbors

Post Office Box 1839  
1112 Main Street  
Klamath Falls, Oregon 97601  
Phone (503) 882-5558

May 10, 1983

Lt. Col. Donald Strickland  
% Air Force Electronic Systems Division  
(ESD/SCU-4)  
Hanscom Air Force Base MA 01731

Dear Colonel Strickland:

The voluntary human care, social service agencies in the Klamath Basin receive stronger community dollar support, through our United Way, than in any county in the entire state of Oregon.

The United Way of the Klamath Basin package of agencies covers the entire spectrum of services and programs: from infant adoption services to seniors hot meals, from character building youth agencies to physical and mental health rehabilitative programs.

Our Klamath Basin United Way supports very strong youth agencies including Boy Scouts, Girl Scouts and Camp Fire offering year-round programs and resident camping experiences in our adjacent beautiful mountain areas. We have an active YMCA with an over 40,000 sq. ft. building which houses a large swimming pool, gymnasium and more than adequate outdoor facilities.

We care for our senior citizens with a new 22,000 sq. ft. structure with outstanding capabilities and a competent staff.

Our community meets the widely focused needs of all our citizens through such agencies as the Speech and Hearing Center, Salvation Army, Child Care Center, "Hotline" 24-hour crisis phone center and the Red Cross.

In addition we have excellent resources for the maintenance of our residents emotional and mental health, i.e. Lutheran Family Counseling and alcohol and drug education and rehabilitation.



While others may address the academic health, economic health, the environmental health or the recreational health of Klamath County, I can assure you the social health of our area is second to none in the West. This is because our citizens not only truly care but really share for the health and happiness of all who now or will reside with us.

Please bring your OTH-B radar system operations center to Kingsley Field. We need and want the Air Force in our Klamath Basin.

Yours truly,

*Peggie Eccles*

Peggie Eccles,  
President

PE/br

cc: Sen. Mark Hatfield  
Sen. Bob Packwood  
Rep. Bob Smith  
Rep. Denny Smith  
Mr. Richard Sexton



## Oregon Women for Agriculture

Klamath Basin Women for Agriculture  
Klamath - Lake - Modoc - & Siskiyou Counties

1423 Homedale Road  
Klamath Falls, Oregon 97601  
May 11, 1983

Attention: Lieutenant Colonel Don Strickland  
Hearings Officer, Klamath Falls, Oregon

Air Force Electronics System Division  
(EST/SCU-4)  
Hanscom Air Force Base, Massachusetts 01731

My name is Marion Lashbaugh; I am president of the Klamath Basin Women for Agriculture. Our group is a member of Oregon Women for Agriculture and American Agri-Women. The organizations work to promote agricultural products, improved farm life, and the entire agri-business community throughout the United States. We would like to give our support and encouragement to locating the Operations Center for the proposed Over The Horizon - Backscatter Radar System at Kingsley Field here in Klamath Falls.

We believe any small amount of pollution from added commuter traffic or facilities necessary to the Operations Center would be present with nearly any type of increase in jobs and certainly a desirable trade-off for a reduction in unemployment in the area. Additional jobs will improve the local economy, add a diverse type of job which would compliment local employment, and very likely reduce theft, vandalism, and other minor crime problems throughout the Klamath Basin. Increased productivity and more jobs are highly desirable for the general well-being of the community.

The Department of Defense has little representation in Oregon and we welcome an Air Force establishment as an integral part of our national defense system. Since this is to be a part of a defensive operation, rather than offensive, we feel it highly desirable to have it located at Kingsley Field for the benefit of the community, the State of Oregon, and the overall protection of the United States of America.

The Klamath Basin Women for Agriculture would welcome the Air Force to our community, and foresee no adverse impact whatsoever on agriculture in the area.

Respectfully,

MARION J. LASHBAUGH  
President, Klamath Basin  
Women for Agriculture

cc: Senator Bob Packwood  
Representative Bob Smith  
Representative Penny Smith  
Klamath County Chamber of Commerce



## COUNTY CHAMBER OF COMMERCE

May 11, 1983

125 NO. 8TH STREET  
KLAMATH FALLS, OREGON 97601  
TELEPHONE: AREA CODE 503. 884-5193

*CDJ*  
Lt. Col. Don Strickland  
Air Force Electronic Systems Division  
(ESD/SCU-4)  
Hanscom AFB, MA 01731

Colonel Strickland and member of the Air Force Team, welcome to Klamath County.

As president of the Klamath County Chamber of Commerce and representing approximately 700 members, I can assure you that an overwhelming majority of the area's businesses and people fully support location of the OTH-B at Kingsley Field and the other proposed sites. That includes Christmas Valley and Alturas which are in our trade area.

We view location of the OTH-B in our area as an integral part of our future diversified economic base. We need this type of economic development because Klamath County and the four other counties of our designated trade area (Lake, Harney, Modoc and Siskiyou) can be classified as "economically lagging areas". With unemployment running as high as 15.6 percent annually we need jobs.

The Chamber has been in the forefront of those who want the Air Force back. We pledge our support to the Air Force Mission and its people.

Sincerely,

James K. Ward  
President

JKW/sc



STATEMENT BY ROGER HAMILTON

KLAMATH COUNTY COMMISSIONER

I fully support the establishment of a maintenance and support facility and an operations center for the air force OTH-BS radar in Klamath County. This installation would help a stagnant Klamath Basin economy get off the ground. The 600 to 1,000 employees of the new facilities, given the multiplier effect in terms of general demand for goods and services throughout the county, could well mean over 2,000 additional job opportunities for our citizens.

It would create a direct demand for the products and skills of our new high tech firms in the Basin, and the services of O.I.T. The computer center location here is also bound to have a significant impact on the identification of this area with high tech production throughout the state and nation.

The installation would bring new blood into the Klamath Basin, people who would undoubtedly contribute much to the community. It would also have a significant impact on demand for air services, and help us upgrade our air transportation scheduling and carrier quality.

From a broader perspective, the OTH-BS radar is for me a wise and cost-effective way to invest our defense dollar. An effective radar system will serve not only as a deterrent to a potential aggressor, but help us to neutralize an attack if such an event should occur.

Atch 7

The entire West coast will look to Southeastern Oregon for our ability to see far and clear. In a sense, we will find ourselves recognized as the Paul Revere of the Western half of the nation - a high-tech, space-age Paul Revere, ready to sound the alarm if our national security should ever be threatened from the air.

I welcome the decision to base the OTH-BS radar support facilities in Klamath County and look forward to cooperating with the personnel of this worthy and exciting project.

DATE: May 11, 1983  
RE: "Over the Horizon-Backscatter Radar System" meeting  
at Mills Auditorium in Klamath Falls, Oregon.

My name is Ed Saunders. I represent the Crater Lake Detachment of the Marine Corps League. I would like to talk about three areas relating to the "Over the Horizon-Backscatter Radar System" that the Marine Corps League feels are important.

First of all, according to the recently released Environmental Impact Statement conducted by the Air Force and other agencies, including the U.S. Bureau of Land Management and the U.S. Forest Service, no significant adverse effects could be expected from the operation of the OTH-B. The main concern here is the effect that this radar system could have on individuals who have pacemakers. This Environmental Impact Statement proved that those individuals will not be affected.

Secondly, the OTH-B will give Klamath Falls an active role in our country's defense. The OTH-B with its sophisticated technology, detects and tracks aircraft at distances beyond the horizon. The West coast OTH-B and her sister on the East coast together will give us coverages of approaches to the North American continent up to 1800 miles off each shore. At present, our radar system is only capable of detecting an object up to 250 miles off shore, giving us only 15 minutes warning of approaching aircraft. With the OTH-B system, we can detect ships, aircraft, and missiles up to 1800 miles off shore, or 1 hour and 40 minutes warning. This is an increase of over 500% over our present system. Just think about that for a minute. How our survivors and those who died at Pearl Harbor would have loved to have had such a capability.

Lastly, this program could provide a number of new jobs in Klamath Falls. By the end of April our local unemployment was at 14.2%. If Klamath got both parts of the OTH-B mission it would lower this by one full percentage point. By the year 1986, 1,000 military and civilian people would be working at Kingsley Field.

Closing: With these three points in mind, the Marine Corps League would like to encourage each and every Klamath County citizen to join with us to bring the "Over the Horizon-Backscatter Radar" mission to Kingsley Field.

May 11, 1983

My name is Larry Holverson and I am speaking as President of the Linkville Kiwanis club. As Kiwanians we are very interested in the livability and economic welfare of our community.

As we move out of this recessionary period we are very much aware of the need to further diversify our Economic Base. We view the Airforce return to the Klamath Basin as being a real boost in achieving that goal.

Unlike many communities impacted by a military installation, our courtship has blossomed for well over 100 years and we are looking forward to the prospects of renewing it.

Our climate, our geographic setting, our recreation, our schools and most of all our friendly people make Klamath County an ideal place to live and work.

I am sure this has become apparent to you during your visits with us. Again I would like to say "Welcome to Klamath Falls and we are looking forward to your returning with the Over The Horizon Backscatter Radar installation and the many Airforce familys necessary to operate it."





OREGON STATE SENATE  
STATE CAPITOL  
SALEM 97310  
(503) 378-8700

Fred W. Heard

May 5, 1983

Air Force Electronic Systems Division  
(ESD/SCV-4) Hanscom Air Force Base  
Maine 01731

Attn: Lt. Col. Don Strickland

Once again I would like to add my wholehearted support to the establishment of the support facility and the operations center of the Over-the Horizon Back Scatter.

Needless to say, in times such as these, the creation of over 800 jobs is extremely attractive. And, as it has been stated many times before, the people of Klamath Falls still have the commitment to the military that has developed over the many years of cooperation between the military and the community. They look forward to renewing that relationship again.

We have all been pleased to find that the preliminary impact statement minimizes the effects on health, wildlife, vegetation and air quality in all of the proposed sites.

Sincerely,

A handwritten signature in dark ink, appearing to read "Fred W. Heard", written over a horizontal line.

FRED W. HEARD  
State Senator

FWH:db

B. Z. "BERNIE" AGRONS  
KLAMATH COUNTY  
DISTRICT 53



HOUSE OF REPRESENTATIVES  
SALEM, OREGON  
97310

MAY 10 1983

REPLY TO ADDRESS INDICATED:

- ☒ House of Representatives  
Salem, Oregon 97310
- ☐ 1401 Pine Grove Road  
Klamath Falls, Oregon 97601
- ☐ P.O. Box 1933  
Klamath Falls, Oregon 97601

May 9, 1983

Lt. Col. Don Strickland  
Department of the Air Force  
Hanscom AFB MA 01731

RE: Over the Horizon-Backscatter Radar

Dear Sir:

I regret my inability to leave my current duties in the Oregon Legislature in order to personally appear at the Hearing in Klamath Falls on 11 May 83.

I am sure that the ultimate decision relative to location of the operations center will be concluded on the basis of the best military decision. I can't comment on military considerations.

I can reaffirm the welcome that the military presence has had, and continues to have, in Klamath Falls for many years. Your people have long been interwoven in the social fabric of our community. Many have chosen to remain here following retirement, and have continued to contribute to the diversity that characterizes our town. Some have provided important leadership in the continued social and economic development of our community.

An expanded Air Force mission would be welcome to me, and I think to the great majority of our citizens who take pride in our armed forces and its posture in this area.

Very sincerely yours,

A handwritten signature in cursive script, appearing to read "Bernie Agrons".

B. Z. "Bernie" Agrons  
State Representative

ATTACHMENT 12

This attachment consists of 44 pages of the "Project Blue Suit Day #2" survey and 4 pages of the "I Do Not Support" survey. Only one page of each survey is reproduced here.

# PROJECT BLUE SUIT DAY #2

## MAY 11, 1983

We hereby pledge our support for  
the over-the Horizon Back-Scatter Radar mission at Kingsley Field

Edwin Merritt J.

William J. Meade

in a timely

Paul Friedrich

W. J. Green

Ray Passen

Eise Passen

Ind Brown

Robert G. Hori

# I DO NOT SUPPORT

the over-the Horizon Back-Scatter Radar mission at Kingsley Field

James Garhard

MARK E CONNELL

Michelle Munson

Andrew R. Gingles

John R. Day

Randie David Peterson

Mark A. Peters

Philip B. Zeman

D. Maw Zeman



*Department of Human Resources*  
**EMPLOYMENT DIVISION**

Klamath Falls Office

801 OAK AVENUE, P.O. BOX 68, KLAMATH FALLS, OREGON 97601 PHONE 883-5630

May 11, 1983

IN REPLY  
REFER TO:

**Exhibit for OHB Radar Hearing**

Although the local economy is presently showing signs of recovery, the county is now entering the fourth year of recessionary conditions. Both the depth and duration of this recession have caused severe damage to the economic infrastructure of Klamath County. Expressions of this damage include lost employment, business failures, property foreclosures, reduced public services, and lost capital investment in both private and public sectors.

While economic recovery has begun, restoration of employment levels to those existing in 1979 will very likely require a two to three year period to accomplish, even under the most favorable circumstances. The following table illustrates the effects of the recession on employment. Between 1979 and 1982, wage and salary employment declined by 3,170. Of the 19,190 persons employed in 1979, 16.5 percent had lost their jobs by 1982. Unemployment climbed steadily over the 1980-1982 period - 10.3 percent in 1980, 12.5 percent in 1981, 14.0 percent in 1982. The average rate for the three year period was 12.3 percent, well above that experienced by either the State or the Nation as a whole.

The Klamath County economy is heavily reliant on manufacturing. In 1979, nearly 5,500 persons were employed in manufacturing, almost 90 percent in lumber and wood products. In 1982, only 4,090 remained employed in manufacturing, a loss of 1,400 jobs. At present, it appears that perhaps 1,000 of this number represent a permanent loss in lumber and wood products employment as the industry is presently constituted, due to closures, increased productivity and lessened demand.

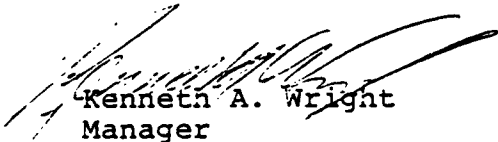
Exhibit for OHB Radar Hearing  
May 11, 1983  
Page two

Therefore, if the Klamath County economy is to fully recover, and to experience future growth, the task of encouraging expansion of existing manufacturing firms and the attraction of new enterprise is vital. The reactivation of Kingsley Air Force Base would constitute a giant step forward along the path to economic recovery.

Klamath County Labor Force, Unemployment & Employment  
Annual Average 1978 - 1982

	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>AVG. 1980-1982</u>
Civilian Labor Force	25,140	25,560	26,910	27,350	26,610	26,960
Unemployment	1,820	2,300	2,780	3,430	3,720	3,310
Unemployment Rate	7.2%	9.0%	10.3%	12.5%	14.0%	12.3%
Wage & Salary Employment	20,500	21,090	20,180	19,190	17,920	

Sincerely,

  
Kenneth A. Wright  
Manager

KAW:lr



May 5, 1983

Lt. Col. Don Stricland  
Air Force Electronics Division  
Hanscom Air Force Base  
Maine 01731

Dear Lt. Col. Stricland:

As the owner of the Shasta Plaza Shopping Center in Klamath Falls, I would like to welcome you to the community. I feel that the Air Force's move to Kinsley Field will greatly benefit both the Air Force and Klamath Falls.

The strategic location would be a great asset for the "Over the Horizon Backscatter System". Kinsley Field presently offers many of the facilities needed by the Air Force.

The benefits to Klamath Falls are innumerable. This community is in dire need of diversifying its employment basis. As the past record indicates, the community of Klamath Falls has always supported the Air Force; and this time is no exception.

We hope that our community will play a role in the defense of our country. You have my total support in your move to Klamath Falls. If I may be of any assistance, please feel free to contact me.

Sincerely,

O & E CORPORATION

Craig T. Ehnisz  
President

cc Senator Bob Packwood





## Town and Country Shopping Center

c/o RW MANAGEMENT, INC.

3926 South 6th Street  
Klamath Falls, OR 97601

May 10, 1983

Lt. Col. Don Stricland  
Air Force Electronics Division  
ESD/SCU-4 Hanscom Air Force Base  
Maine 01731

Dear Lt. Col. Stricland:

As the owner of the Town & Country Shopping Center and Cedar Gardens Apartments in Klamath Falls, I would like to personally welcome you to our community and extend my full support of the Air Force's plans to locate the "Over The Horizon Backscatter Radar System" at Kingsley Field.

The Klamath Falls area has been economically depressed for some time now due to a lack of diversification in the economic base. An installation of the type you are proposing here in Klamath Falls would help tremendously toward this diversification.

I feel that Kingsley Field offers many of the facilities needed for your operation and that our community is extremely supportive of your program. Kingsley Field was once a very viable military base and would like very much to see this operation returned to our community.

Again, I offer my full support and highly recommend that the entire "Over The Horizon Backscatter Radar System" be installed in the Klamath Basin. Please feel free to contact me if I may be of any assistance.

Thank you.

Sincerely,  
Remstedt Associates

*Walter E. Remstedt*  
Walter E. Remstedt, President

WER:pl

cc: Senator Bob Packwood



**Weyerhaeuser Company**

P.O. Box 9  
Klamath Falls, Oregon 97601  
A/C 503 • 884-2241

MAY 11, 1983

STATEMENT OF  
GEORGE KOVICH, VICE PRESIDENT AND GENERAL MANAGER  
WEYERHAEUSER COMPANY, EASTERN OREGON REGION  
TO  
U.S. AIR FORCE ENVIRONMENTAL IMPACT HEARING  
OVER-THE-HORIZON BACKSCATTER RADAR

GOOD EVENING. I AM GEORGE KOVICH, VICE PRESIDENT AND GENERAL MANAGER OF WEYERHAEUSER COMPANY'S EASTERN OREGON REGION. WEYERHAEUSER COMPANY IS THE KLAMATH BASIN'S LARGEST PRIVATE EMPLOYER, AND HAS BEEN A PART OF THIS COMMUNITY FOR MORE THAN 50 YEARS.

WEYERHAEUSER COMPANY SUPPORTS LOCATION OF THE OVER-THE-HORIZON BACKSCATTER RADAR OPERATIONS AND SUPPORT MISSIONS AT KINGSLEY FIELD FOR TWO REASONS:

FIRST, WE SUPPORT A STRONG NATIONAL DEFENSE, OF WHICH THIS DEFENSIVE WARNING SYSTEM IS A VITAL PART; AND

SECOND, LOCATION OF THE MISSION HERE WILL BE A STRONG POSITIVE FORCE FOR THE LOCAL ECONOMY.

WE BELIEVE THE NEGLIGIBLE NEGATIVE IMPACTS CITED IN THE ENVIRONMENTAL IMPACT STATEMENT ARE FAR OUTWEIGHED BY THE POSITIVE ECONOMIC IMPACTS. CONSIDER THE FOLLOWING:

. WE ARE JUST BEGINNING TO EMERGE FROM THE WORST RECESSION SINCE WORLD WAR II, A RECESSION IN WHICH THE FOREST PRODUCTS INDUSTRY WAS AMONG THE HARDEST HIT.

. KLAMATH COUNTY'S UNEMPLOYMENT RATE HAS BEEN THE WORST SINCE THE 1930S AT CLOSE TO 15 PERCENT OF THE WORK FORCE.

. UNEMPLOYMENT HAS HAD A COMPOUNDED EFFECT ON LOCAL GOVERNMENT BECAUSE OF THE LOSS OF REVENUE FROM TIMBER RECEIPTS.

. THIS, IN TURN, HAS THROWN AN ADDITIONAL BURDEN ON LOCAL TAXPAYERS TO SUPPORT VITAL SERVICES SUCH AS SCHOOLS.

. WOOD PRODUCTS IS A CYCLICAL INDUSTRY, AND THE CYCLE WE HAVE SEEN WILL BE REPEATED.

. DIVERSIFICATION OF THE BASIN'S ECONOMY -- NOW DEPENDENT MAINLY ON FOREST PRODUCTS AND AGRICULTURE -- IS ESSENTIAL TO MINIMIZE THESE FLUCTUATIONS.

THE OVER-THE-HORIZON BACKSCATTER SYSTEM WILL BOOST OUR ECONOMY IN ITSELF, BUT IT ALSO WILL SERVE NOTICE THAT THE AREA IS IN BUSINESS FOR DIVERSIFIED INDUSTRY INCLUDING HIGH TECHNOLOGY.

THIS GIANT STEP FORWARD FOR DIVERSIFICATION OF THE KLAMATH BASIN ECONOMY ALSO MAKES GOOD SENSE FOR THE AIR FORCE AND THE NATIONAL TAXPAYER. KINGSLEY FIELD IS HERE AND OPERATIONAL; THERE IS AMPLE ADEQUATE HOUSING; AND WE HAVE A TRAINED, AVAILABLE WORK FORCE.

A FINAL NOTE ON THE ENVIRONMENT. OUR COMPANY IS THE COUNTY'S LARGEST PRIVATE LANDOWNER, WITH A HIGHLY PRODUCTIVE TREE FARM SUPPORTING OUR MANUFACTURING OPERATIONS. WE HAVE WORKED WITH THE AIR FORCE ON LAND USE AND ACCESS MATTERS IN THE PAST, ALWAYS ON A CORDIAL AND COOPERATIVE BASIS, AND WE LOOK FORWARD TO DOING SO AGAIN AS THE OVER-THE-HORIZON BACKSCATTER RADAR MISSION PROGRESSES. IT IS WHOLLY COMPATIBLE WITH OUR TREE GROWING OPERATIONS.

WE STRONGLY SUPPORT LOCATION OF THE MISSION HERE, AND HOPE OUR NEIGHBORS WILL DO THE SAME.

# # #

Malin, Oregon  
May 10, 1983

Lieutenant Col. Don Strickland, Hearings Officer  
Department of the Air Force  
Air Force Electronic Systems Division (ESD / SCU-4)  
Hanscom AFB, MA 01731

Attention Lt. Col. Don Strickland,

My husband and I are local residents who have lived in this basin (Klamath County, Oregon) our entire lives. We are local farm land owners and operators.

We support the location and installation of the West Coast Over The Horizon Backscatter (OTH-B) Radar System at Kingsley Field. We do not feel this defense system would have any significant environmental impact or be detrimental to agriculture in any way.

We invite the military people affiliated with the proposed defense system to be part of our community.

Yours very truly,

*Mr & Mrs Ival Taylor*

Mr. & Mrs. Ival Taylor  
Star Route Box 165-A  
Malin, Oregon 97632

May 11, 1983

To whom it may concern:

Regarding the Over-The-Horizon Backscatter Radar installation proposed for the Klamath Falls area: I have some serious questions about the potentially adverse effects such an operation can have on human health. In September of 1982, I asked the Air Force panel if the Air Force could give us categorical assurance that we will not see an increase in birth defects, cancer, or weakening of resistance to other disease as a result of this radar installation. The answer was a clear "no". In effect, we were told there may be health hazards associated with this radar. I would like to know what the Air Force plans to do in addressing this issue. I feel that at the very least a baseline health study indicating current levels of radiation/radioactivity combined with current statistics on birth defect, cancer and other disease rates would be in order to serve as a comparison point at some point in the future when the radar has been in operation for some time. I do not feel this was adequately addressed in the EIS, and I would like a personal response to this matter. My address is 407 N. 9th St., Klamath Falls, Oregon 97601.

Once again, as I did in my previous testimony, I would like to respectfully inform the Air Force that should the OTH-B be located in this area, I will exercise my constitutional right to inform the public of the economic, physical, and moral dangers of this project utilizing all the resources at my disposal, pursuing legal recourse if necessary. Thank you for your attention in this matter.

Sincerely,

  
Gabriel Gomez

~~Agenda~~ 505-725101  
14 June 1964

Good evening, my name is Bob Kennedy. I am a past president of the Klamath County Chamber of Commerce and tonight I speak for that body as a current member of the Government Affairs Committee.

We support the concept of the Over the Horizon Back Scatter Radar, and we believe the best location for the operations and maintenance center is Kingsley Field.

We support the system because it is obviously needed as an early warning defense system. With its installation any enemy will realize that we can not be attacked without warning, as the Japanese were able to do at Pearl Harbor.

We support the system because, it appears we do have something of a gap in our defense in Oregon, and this might deter an attack in this area. And the rest of the nation.

We support this system because it is a defense tool. With vigilance we can defend our country and that means defense of some of the rights we take for granted and sometimes abuse, like our right to assemble and to speak here tonight. Like our right to redress of grievances and our right to prayer and a choice of our own religion. These are just a few of the freedoms we will be defending.

We support the concept because the environmental impact statement states, and we believe, there would be no noticeable impact in this area or the Christmas Valley area where the transmitter will be located. The high desert area seems to be an excellent choice for the transmitter because of the low value desert type land, noticeable lack of vegetation and wild life, and the very very low density of population.

We support the location of the operations and maintenance center at Kingsley Field.

Geographically it seems to be the best location. It would appear that housing, both Air Force and Private, is ample. As well as other support facilities.

We appreciate the Air Force. They have been good community neighbors in the past and have earned our respect. Just one example is the way they always worked on our United Good Neighbors drive and always came in over their goal.

Our community is basically a politically stable community that supports adequate national defense and I believe the Air Force has always felt comfortable and welcome here.

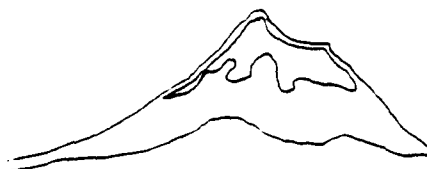
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While planes probably won't be a big factor in the operation of the radar, we do have a fine airfield - courtesy of the Air Force - with low air traffic, and weather that allows flying near 100% of the time.

We support the project from a provincial viewpoint. With over 14% unemployment, even after many people have left the area, we need jobs, and we have a good and ample work force. If the operations and maintenance center will reduce that figure .8 of 1% we will welcome you with open arms. You will be visible. You will be appreciated.

The over the Horizon Backscatter radar project will be built-- it should be built. We hope you select Kingsley Field for the operations and maintenance center. We will cooperate in every way to make it your best choice.



## SHASTA PLAZA MERCHANTS ASSOCIATION

c/o RW Management, Inc.  
3926 South Sixth Street  
Klamath Falls, Oregon 97601 (503)884-4430

May 11, 1983

Lt. Col. Don Strickland  
United States Air Force

Dear Lt. Col. Strickland:

As president of the 37 member Shasta Plaza Shopping Center Merchants Association, I would like to say that we and our employees are very much in support of the Air Force placing the Over-the-Horizon Backscatter radar system at Kingsley Field.

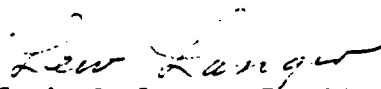
Oregon, and especially Klamath County, is an economically depressed area because of our dependence on the lumber and housing industry. Although there has been some improvement in the lumber industry we realize that this industry will never again be as important or employ as many as they have in the past. The Over-The-Horizon Backscatter radar system will create many needed jobs at Kingsley Field as well as many additional support jobs for our community. It will also be a welcome diversification for the economy of our area.

Klamath Falls has advantages for the Air Force, including a favorable climate with lots of sunshine and clean air. The community is large enough to offer complete shopping, entertainment and medical facilities, as well as excellent educational facilities up through the college level with Oregon Institute of Technology. The quality of life and outdoor activities are outstanding.

Probably the very most important attribute is that Klamath Falls has had a great working relationship with the Air Force. History shows that Klamath Falls has appreciated the Air Force and the Air Force has enjoyed a good relationship with Klamath Falls. We have worked well together and the community has had tremendous support and participation from the Air Force. I feel this will be a great partnership again.

In closing I urge you to seriously consider Klamath Falls as the base for the Over-The-Horizon Backscatter radar system.

Sincerely,

  
Lewis L. Langer, President  
Shasta Plaza Merchants Association

LLL:sa

cc: Senator Bob Packwood

BOB PACKWOOD, OREG., CHAIRMAN  
BARRY GOLDWATER, ARIZ.  
JOHN C. DANFORTH, MO.  
NANCY LAMON KASSEBAUM, KANS.  
LARRY PRESSLER, S. DAK.  
SLADE GORTON, WASH.  
TED STEVENS, ALASKA  
BOB KASTEN, WIS.  
PAUL S. Trible, JR., VA.  
ERNEST F. HOLLINGS, S.C.  
RUSSELL B. LONG, LA.  
DANIEL K. INOUE, HAWAII  
WENDELL H. FORD, KY.  
DONALD W. RIEGLE, JR., MICH.  
J. JAMES EXUM, NEBR.  
HOWELL HEFLIN, ALA.  
FRANK R. LAUTENBERG, N.J.  
WILLIAM M. DIEFENDERFER, CHIEF COUNSEL  
RALPH B. EVERETT, MINORITY CHIEF COUNSEL

## United States Senate

COMMITTEE ON COMMERCE, SCIENCE,  
AND TRANSPORTATION  
WASHINGTON, D.C. 20510

May 10, 1983

The Honorable Verne Orr  
Secretary of the Air Force  
Department of Defense  
The Pentagon  
Washington, D.C. 20301

Dear Secretary Orr:

I am writing concerning the Department of the Air Force's Draft Environmental Impact Statement for the proposed West Coast Over-The-Horizon-Backscatter (OTH-B) Radar System.

The selection of Kingsley Field as the only candidate site for the support base has my enthusiastic support. I believe the Department of the Air Force will have a difficult task in finding a community more receptive than Klamath Falls, Oregon. State and local officials are united in their support of the location of the OTH-B in the Klamath Falls area.

As you are aware, Kingsley Field is in competition with three other candidate sites for location of the operation center. As with the support center, location of the operation center at Kingsley Field has my support. Klamath Falls has suffered from unusually high levels of unemployment the past several years. Establishment of both the operation and support centers at Kingsley Field is critical in terms of diversifying Klamath County's timber based economy.

I am concerned that selection of a site other than Kingsley Field for the operations center would result in higher administrative and transportation costs. This would be due to geographic distance between the proposed transmitter and receiver sites, and the other three candidates sites for the operations center. In addition, location of the operations center along with the support base at Kingsley Field would avoid unnecessary duplication between the two commands. I would hope the Department of the Air Force's final environmental impact statement would reflect these unique cost savings.

The Honorable Verne Orr  
May 10, 1983  
Page Two

There are two aspects of the draft environmental impact statement I believe merit special consideration. First, the environmental impact statement notes that of all the candidates sites for location of the operations center, Kingsley Field would incur the greatest comparative reduction in unemployment. Secondly, the environmental impact statement notes that location of both the support base and operation center at Kingsley Field would not result in significant adverse environmental impact.

In closing, I would encourage the Department of the Air Force to give special consideration to economic factors affecting Klamath County when selecting the site for the operations center. The additional jobs involved would present welcome relief in an area that has been hard hit by the national recession.

Thank you for your time and consideration.

Cordially,

  
BOB PACKWOOD

BP/gjc

# Rex H. Ervin, D.D.S., P.C.

110 North Sixth Street  
KLAMATH FALLS, OREGON 97601

Telephone (503) 882-4461

Practice Limited to Orthodontics

May 10, 1983

Klamath County Chamber of Commerce  
125 North 8th St.  
Klamath Falls, Oregon 97601

Dear Sirs;

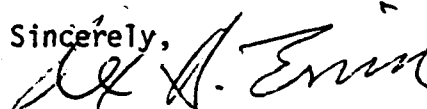
The Klamath Dental Society is in complete accordance with local efforts to get Kingsley Field selected as the operations center for the OTH-B Radar System.

The boost to our local economy would be very beneficial to the area and very much appreciated by local residents. Also, there would be an increased sense of local pride with the additional Air Force mission at Kingsley Field.

Most of the members of the Klamath Dental Society have had military experience. They would easily relate to and give support to the new military personnel and their mission.

We extend the heartiest of welcomes to the Air Force personnel. There is no place where they would be more welcome or more appreciated than KLAMATH FALLS.

Sincerely,



Rex H. Ervin, D.D.S.  
President, Klamath Dental Society

RHE:be

Atch 23

Klamath Falls

# PACIFIC

PACIFIC LINEN—MECHANICS UNIFORM SERVICE INC. DBA

# SUPPLY

330 South 7th Street

Klamath Falls, Oregon 97601

(503) 884-5111

May 10, 1983

Air Force Sight Selection Committee  
Electronics Systems Division  
Hanscom A. F. B., MA 01731

Sirs:

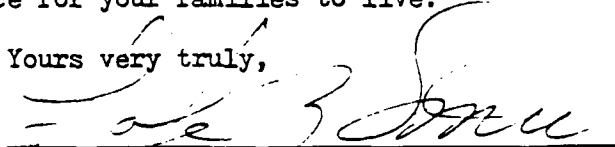
As both the General Manager of Pacific Linen Supply and President of the Klamath Basin Sheep Producers, I would like to extend our sincere hope that you would find Klamath Falls as the area for your facility.

As Manager of Pacific Linen, I see an opportunity for the growth of the Klamath area, adding new jobs in our Company and others who are in the service field. I believe you will find Klamath Falls a very civic minded community with a real opportunity for the military.

As President of the Sheep Producers, I am unable to speak for all of them, as we are a two-state organization, but personally I would recommend Klamath County. The dependants of your duty personnel will find this a very pleasant place to live, free of the pressures of other large city Air Force Bases. We have excellent county services and a very extensive 4-H youth program of every thing from livestock to sewing. These programs have more than 1,000 young people in them, culminating each year in our 4-H youth fair at the County Fair in August.

We of Klamath County, know you will find this a great place to work and an even better place for your families to live.

Yours very truly,



Lafe Z. Smith

General Manager, Pacific Linen Supply  
President, Klamath Basin Sheep Producers

LZS:bmc



THOMAS ASSOCIATES, INC. BUILDERS (503) 884-8951

1171 Lynnewood Blvd.

~~Bear Valley Ranch~~  
~~Ashland State Route~~  
Klamath Falls, OR 97601

May 8, 1983

Honorable Robert F. Smith  
Congressman 2nd District, Oregon  
1150 Crater Lake Ave. Suite K  
Medford, Oregon 97501

Dear Bob:

Mrs. Thomas and myself ask that you use your best offices to convince the U. S. Department of the Air Force that selection of Kingsley Field for location of the Operations Center and Support Base Site of the (OTH-B) proposed Radar System is in their best interest.

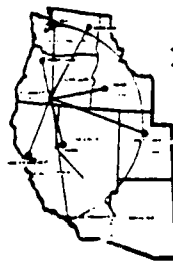
We are two of an exceedingly large majority of people living in and around Klamath Falls who wish to see the Air Force locate here. We will do whatever is required to help you in your endeavors.

We wish to thank you and hope you will continue to work toward bringing the Air Force back to Klamath Falls.

Theodore A. Thomas

Patricia M. Thomas

cc: Klamath Falls Chamber of Commerce



**KLAMATH  
County  
Economic  
Development  
Association**



May 6, 1983

Mr. Ro Raffa  
Air Force Electronic Systems Div.  
(ESD/SCU-4)  
Hanscom AFB, MA 01731

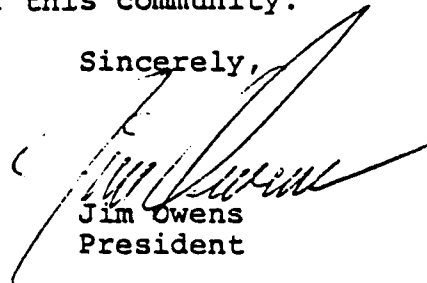
Dear Mr. Raffa,

The thirty Directors of the Klamath County Economic Development Association representing major interests throughout Klamath County including agriculture, timber, energy, high education and government unanimously support the location of the Over the Horizon Backscatter System at Kingsley Field, Alturas and Christmas Valley. We are certain that our enthusiastic support typifies the attitude in our community and we welcome the favorable impact on our economically depressed area.

The existing facilities at Kingsley Field; the availability of affordable housing; a history of excellent community relations with the Air Force; a centralized location; an unpolluted air shed and the high caliber of technical education at Oregon Institute of Technology are a few of the unique advantages we offer your project.

Your decision to locate at Kingsley Field will enhance rather than burden the facilities of this community.

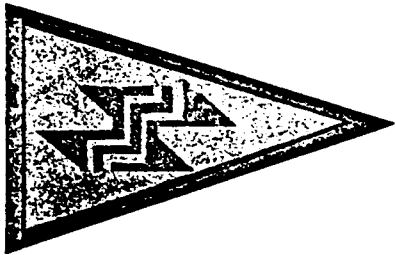
Sincerely,



Jim Owens  
President

JO/pv





# *Klamath Yacht Club*

P.O. Box 1648      2700 FRONT STREET  
KLAMATH FALLS, OREGON

Mr. Ross Ragland  
Chamber of Commerce  
Klamath Falls, OR 97601

Dear Ross:

In the past, KYC had an enthusiastic member, Capt. David McNabb, USAF. We appreciated him and his efforts. We have every reason to expect an excellent rapport with the Air Force.

Sincerely,

Bob DeRosier  
Commodore, KYC

CERTIFIED MORTGAGE COMPANY

836 KLAMATH

KLAMATH FALLS, OREGON 97601-6197

TELEPHONE (503) 883-7144

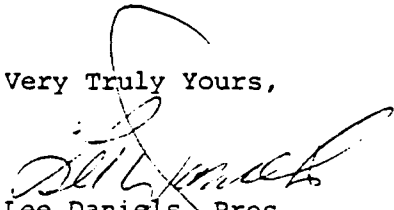
May 11, 1983

Klamath County Chamber of Commerce  
Klamath Falls, Oregon

Dear Dick;

Because I will be unable to attend the public hearing at Mills auditorium this evening, I am using this method to be counted as supporting the prospect of the "OVER THE HORIZON" Back-scatter radar installation here at Kingsley Field. The positive aspects of this mission so far outweigh the negative possibilities that I believe it is prudent to wholeheartedly support the active pursuit of the proposition.

Very Truly Yours,



Lee Daniels, Pres.  
Klamath Falls Kiwanis Club.

Antonio Source

I am opposed  
of this militistic  
Expansion of  
nothing  
for  
nothing

DENZO IGOY (EJOY)

I AM IN OPPOSITION  
TO THIS BLUE MADNESS

We as retired citizens  
feel that this  
defense project  
will be beneficial  
for Klamath Falls  
& vicinity Ethel & Bob Reynolds  
3712 Busbee K Falls, Or.

# Mountain Home Chamber of Commerce

May 13, 1983

MOUNTAIN HOME, IDAHO

AIR FORCE ELECTRONIC SYSTEMS DIVISION  
(ESD/SCU-4)  
Hanscom AFB, MA 01731

Pursuant to the Public Meeting held May 13, 1983, at the North Elementary School, Mountain Home, Idaho, relative to Department of the Air Force Environmental Statement for the Over The Horizon-Backscatter Radar System.

We address our comments as follows:

Reference Page S-10, Para 3: Rental Housing may be in short supply, depending on conditions prevailing in 1986 through 1988.

EXCEPTION: Mountain Home Chamber of Commerce along with Real Estate and Rental property owners have always responded for increases to the housing inventory when the need was apparent. Example: From 1960 to 1963, during the Missile Site construction, the city population reached 12,000. There were 7 new subdivisions developed providing 435 new homes. Mobile Courts were filled to capacity providing spaces for 1,055 mobile homes.

EXCEPTION: Due to increased activity on Mountain Home AFB, more housing was needed in the 1970's. Home Building began in 1973 in 28 newly platted subdivisions, providing by 1979 a total of 800 new homes. Along with 198 apartment units, 46 duplex units, plus approximately 200 mobile home sales. During this era, in 1977, the Base accomplished "Operation Ready Switch" which was a three Wing move between Lakenheath, England, Nellis AFB, Nevada, and Mountain Home AFB. This move provided an additional personnel gain of 313 military persons. No problems were experienced with housing in this gain of personnel. No families were forced to live in the Boise area because of the lack of adequate housing in the Mountain Home area.

Reference Page S-17 Cost Factors: Mountain Home AFB is fully operational for support facilities and personnel as opposed to opening and staffing Kingsley Field, Oregon. Cost Factor at Mountain Home AFB would be substantially lower than at Kingsley Field.

Reference Page S-18 Mountain Home AFB Construction: adequate transient housing. Operation: Shortage of rental units possible but unlikely.

EXCEPTION: Historically Mountain Home has always responded to the Air Force housing needs. New construction projected within the next 5 years in the Mountain Home area alone is as follows:

Single Dwelling Units -----	375
Apartment Units -----	109
Mobile Units -----	285
Motel Units -----	126 (Double Occupancy)
Total Projected Construction -----	895

Therefore, request remark on shortage of rentals be omitted and a more positive view presented due to the additional information submitted.

Reference Page 2-16, Table 2-2, Para C: Socioeconomic Effects:

Housing: Mountain Home possible shortage of rental units.

EXCEPTION: Not realistic. Reference EXCEPTION noted for page S-18. In addition ample housing is available in the surrounding area within one hour drive to Mountain Home Air Force Base.

Reference Page 2-18, Para 2.8.3.2: Request Clarification. The housing supply is adequate at all sites except perhaps for rental units at Mountain Home AFB. Clarify rental units. Is this on Mountain Home AFB? If rental units relate to the Mountain Home area, then once again reference is made to Page S-10 EXCEPTION taken.

Reference Page 3-148, Para 3.9.2.4 (Para 3) During 1979, the greater Mountain Home area was overbuilt by approximately 200 units (USAF, 1982a)

EXCEPTION: The Mountain Home Chamber of Commerce, Real Estate, and Rental Owners strongly object to this statement. The Mountain Home area was NOT overbuilt. If this had been the case, Mortgage Bankers certainly would not have funded the construction of new units if the city had been overbuilt. Housing sales became slow due to the high interest rates.

Reference Page 3-149, Para 1: Vacancy rates for both rental and owner occupied homes currently average 4% in the greater Mountain Home area etc.

CLARIFICATION: The 4% vacancy factor related to only rentals in the immediate Mountain Home area. The overall vacancy factor within an hour of the Base is 12%. Owner-occupied homes is around 2% with 2% being unoccupied.

Reference Page 3-153, Para 1: On base housing resources for permanently assigned military personnel consist of 1,522 housing units. (462 multiple units, 860 duplex units, and 200 trailers)

CLARIFICATION: Question on 200 trailers. There are no residential trailers on Mountain Home AFB. Most likely these 200 are meant to be the 200 three bedroom single family units on permanent foundations.

Reference Page 4-154, Para 1: In 1986 and 1987, 300 Air Force families would seek housing in the ROI. Although some of these families might be placed in base housing, the worst case assumption is that all families will seek off-base housing.

EXCEPTION: Quote previous EXCEPTION to S-10. Object to the phrase "the worst case assumption". It is projected that by 1990, over half the population of the City will consist of military retirees and their families, proving the town has tremendous appeal to military personnel and their families. Object very strongly to the wording as stated.

Reference Page 4-154, Para 2: On average, about 25 are likely to seek homes to own and 275 would want rentals.

EXCEPTION: In our opinion 50% would likely seek homes to own and the remainder would seek rentals. The average price of a modest 3 bedroom home with garage in Mountain Home area is between \$40,000 to \$50,000, prompting personnel to purchase homes rather than rent. Mortgage money is made available through the Idaho Housing Agency, making it possible to acquire homes at a lower rate of interest than other conventional sources, including VA and FHA.

Reference Page 4-155, Para 4.9.3.4, Para 2: Rentals might not be readily available.

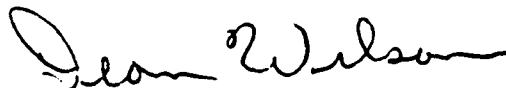
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EXCEPTION: In the past decade, the Glens Ferry, Hammett, Grandview, Bruneau, and Boise areas being within an hour or less driving time from Mountain Home AFB have provided a good variety of rentals.

In closing, the Communities of Mountain Home and Mountain Home Air Force Base have enjoyed over the past years an outstanding and enjoyable relationship, second to none. This has been attested to by many service personnel who have been stationed at other installations throughout the world. With all the OUTSTANDING AWARDS Mountain Home Air Force Base personnel are receiving, i.e., "Best in Tac", "Best in the Air Force", along with one of the highest re-enlistment rates in the Air Force, surely it is a tribute to the Mountain Home Community in their desire to create a "ONE COMMUNITY CONCEPT".

We feel confident the United States Air Force will consider all factors and will select Mountain Home Air Force Base for their Operation Center for the Over The Horizon-Backscatter Radar System.

Sincerely,



Dean Wilson  
President, Military Affairs Committee of 50  
Mountain Home Chamber of Commerce

JAMES A. MC CLURE, IDAHO, CHAIRMAN  
MARK O. HATFIELD, OREG.  
LOWELL P. WICKER, JR., CONN.  
PETE V. DOMENICI, N. MEX.  
MALCOLM WALLOP, WYO.  
JOHN W. WARNER, VA.  
GORDON J. HUMPHREY, N.H.  
FRANK H. MURKOWSKI, ALASKA  
DON NICKLES, OKLA.  
JOHN F. EAST, N.C.  
JOHN HENZ, PA.  
HENRY M. JACKSON, WASH.  
J. BENNETT JOHNSTON, LA.  
DALE BUMPERS, ARK.  
WENDELL H. FORD, KY.  
HOWARD M. METZENBAUM, OHIO  
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JOHN MELCHER, MONT.  
PAUL E. TSONGAS, MASS.  
BILL BRADLEY, N.J.

MICHAEL D. HATHAWAY, STAFF DIRECTOR  
CHARLES A. TRABANDT, CHIEF COUNSEL  
D. MICHAEL HARVEY, CHIEF COUNSEL FOR THE MINORITY

## United States Senate

COMMITTEE ON  
ENERGY AND NATURAL RESOURCES

WASHINGTON, D.C. 20510

May 13, 1983

The Honorable Verne Orr  
Secretary of the Air Force  
The Pentagon  
Washington, D.C. 20330

Dear Mr. Secretary:

We Idahoans have great pride in our military, especially the U.S. Air Force. We have always favored a strong national defense and have always taken pride in Mountain Home Air Force Base.

I am pleased by the consideration of Mountain Home Air Force Base for the location of the operations center for the OTH-Backscatter Radar. There are a number of compelling reasons which cause me to believe that Mountain Home is the best possible choice for this installation.

In my view, Mountain Home A.F.B. would be the most cost effective place to site the OTH-Backscatter Operations Center. In terms of operational survivability in a wartime environment, Mountain Home's interior location far from the sea coast makes it the most survivable location available. The base is easily able to accomodate the new mission and this would be the most inexpensive place for the Air Force to put the center.

Excellent facilities, both on the base and in the neighboring communities, will provide services for additional personnel. Housing is abundant. There is less than one month's wait for on-base family housing and the homes are attractive and well maintained. Off-base housing, both to rent and to purchase, is similarly plentiful, reasonably priced and appealing.

The area has more than enough capacity for all city services -- sewer, fire protection, medical and recreational facilities. The additional personnel who operate the new center can be assured that their children will have fine schools and a wholesome environment.

The new Operations Center will be warmly welcomed by the civilian population of Mountain Home and Elmore County. The historical relationship between the Base and the town has always been cordial and cooperative. It is no secret - the Base is important to the town of Mountain Home. Because of this, the Air Force can be assured that the people of Elmore County will spare no effort in working with the Base to make every member of the Air Force glad to be assigned to duty here.

So, for many reasons, I am sure that Mountain Home Air Force Base is an ideal location for the Operations Center for the OTH-Backscatter Radar.

Sincerely,



James A. McClure  
United States Senator

Atch 32

Mountain Home



JOHN V. EVANS  
GOVERNOR



OFFICE OF THE GOVERNOR

STATE CAPITOL  
BOISE 83720

May 13, 1983

The Honorable Vern Orr  
Secretary of the Air Force  
The Pentagon  
Washington, D.C. 20250

Dear Mr. Secretary:

I am pleased to recommend Mountain Home Air Force Base for selection as the Operations Center for the West Coast Over-The-Horizon Backscatter Radar system.

Both the city of Mountain Home and the State of Idaho have enjoyed an excellent working relationship with Mountain Home A.F.B. The Mountain Home area has good resources to support a project of this magnitude. Their schools, transportation systems, housing and labor force are more than adequate to meet project needs.

I also understand that selecting Mountain Home A.F.B. as the Operations Center site will result in substantial savings to the Air Force.

For these reasons and because I believe the people of Idaho strongly support this project, I urge your favorable consideration of Mountain Home A.F.B. for this project.

Sincerely,

JOHN V. EVANS  
GOVERNOR OF IDAHO

JVE:pdc

cc: James J. F. Boatwright  
Deputy Assistant Secretary, Air Force  
Installation, Environment and Safety

### 3 COMMENT LETTERS

Several dozen letters addressing the OTH-B program were received by the Air Force subsequent to the issuance of the Draft EIS. Those letters that required response or provided information that augments the Draft EIS are reprinted here. Responses to questions raised in these letters appear in Section 4. The comments for which responses have been prepared are numbered in the right hand margin of the letters. Those letters that express opinions about where the OTH-B facilities should be located but do not comment on the Draft EIS are identified below but not reprinted.

#### Letters Reprinted

1. Col. Ronald J. Wedeen, Base Civil Engineer, McChord AFB, February 17, 1983.
2. Dr. Knox Mellon, California State Historic Preservation Officer, May 3, 1983.
3. Eddie V. Edwards, Assistant Area Director-Resources, U.S. Bureau of Indian Affairs, Sacramento Area office, May 6, 1983.
4. Lake County Board of Commissioners, May 18, 1983.
5. Betsy Wolen, Environmental Affairs Program, Habitat Management Division, Washington Department of Game, May 19, 1983.
6. Kurt W. Heidergott, May 21, 1983.
7. M. L. Gibson, May 23, 1983.
8. Leo Torba, May 22, 1983.
9. Leo Torba, May 22, 1983.
10. Edwin L. Depaoli, Area Manager, Lakeview District, U.S. Bureau of Land Management, May 23, 1983.
11. C. C. Grewill, President, Midstate Electric Cooperative, Inc., May 26, 1983.
12. Natalie Schulz, May 30, 1983.
13. Victor Atiyeh, Governor, State of Oregon, May 31, 1983

14. Robert Horvitz, Chairman, OTH-B Radar Committee, Association of North American Radio Clubs, June 1, 1983.
15. William H. Boyer, June 2, 1983.
16. Kathleen Buynole, June 2, 1983.
17. Richard Nichols, Manager, Central Region, Oregon Department of Environmental Quality, June 2, 1983.
18. Gordon F. Snow, Assistant Secretary for Resources, The Resources Agency of California, June 6, 1983.
19. Bill Seavey, Bend Words and Graphics Center, June 6, 1983.
20. John Pascoe, June 7, 1983.
21. E. Laird Campbell, Acting General Manager, The American Radio Relay League, Inc., June 9, 1983.
22. L. E. Coate, Acting Administrator, U.S. Environmental Protection Agency, Region X, June 9, 1983.
23. Gary D. Brackett, Manager, Business/Industry Council, Tacoma-Pierce County Chamber of Commerce, June 10, 1983.
24. Anthony J. Faast, Environmental Management Section, Oregon Department of Fish and Wildlife, June 10, 1983.
25. Dennis Lundblad, Operations Management Division, Washington Department of Ecology, June 10, 1983.
26. E. F. Myers, Jr., Acting Base Civil Engineer, McClellan AFB, June 15, 1983.
27. George W. Ploudre, Assistant Chief, Engineering Division, Seattle District, U.S. Army Corps of Engineers, June 16, 1983.
28. J. Lamar Beasley, Deputy Chief, Washington Office, U.S. Forest Service, June 20, 1983.
29. Glenn Bradley, Supervisor, Modoc National Forest, U.S. Forest Service, June 20, 1983.
30. Dolores Streeter, A-95 Coordinator, Oregon Executive Department, June 21, 1983.
31. Gordon F. Snow, Assistant Secretary for Resources, The Resources Agency of California, June 22, 1983.
32. Oregon Intergovernmental Relations Division, State Clearinghouse, June 28, 1983.

33. Oregonians Against, no date.

34. Cori Porter, no date.

Letters Not Reprinted

Letters that express support for locating the OTH facilities at Kingsley Field and in central Oregon.

1. Jim Owens, Klamath County Economic Development Association, May 6, 1983.
2. James A. Allen, Rotary Club of Klamath County, May 10, 1983.
3. Richard W. Sexton, Klamath County Chamber of Commerce, May 17, 1983.
4. Clinton B. Carrico et al., May 20, 1983.
5. Robert F. Smith, U.S. Congressman, May 20, 1983.
6. Ralph L. Meservey, May 23, 1983.
7. Arthur A. Shaw, Klamath County Economic Development Association, May 23, 1983.
8. Klamath County Board of Commissioners, May 24, 1983.
9. Victor L. Alexander, Andy Silani, Realtor, May 25, 1983.
10. Andrea L. Alexander, May 25, 1983.
11. E. Shultz, May 25, 1983.
12. Andy Silani, May 25, 1983.
13. Gene Bunnell, May 26, 1983.
14. Mayann Cunard et al., Chuck Fisher and Associates Inc, Realtors, May 26, 1983, and June 1, 1983.

Letters that express opposition to locating the OTH-B transmitter in Central Oregon.

1. Nancy Bennett et al., Bend, Oregon, June 8, 1983.

Letters that express support for locating the OTH-B operations center at Mountain Home, Idaho.

1. Don Graham, Mountain Home Chamber of Commerce, June 9, 1983.



DEPARTMENT OF THE AIR FORCE  
HEADQUARTERS 62d AIR BASE GROUP (MAC)  
McCHORD AIR FORCE BASE, WASHINGTON 98438

17 FEB 1983

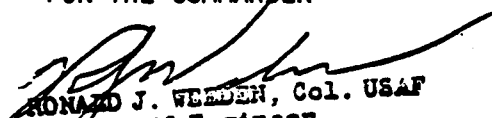
REPLY TO: 62 CES/DEEV (Mr Krance/3268)  
ATTN OF:

SUBJECT: Draft Environmental Impact Statement for OTH-B Radar System Review (Your Ltr,  
18 Jan 83, same subject)

TO: HQ ESD/SCU-4T

1. EIS Para 4-137: We do not feel the comment concerning relocation of the Child Care Center during construction activity is appropriate. Construction noises are considered transitory in nature. Projects already scheduled in the area do not involve temporary relocation of the child care center.
2. EIS Para 3-116: Morey Pond will not be stocked with any game fish in 1983 (bass, crappie or blue gill). The pond flows into Clover Creek, a free flowing stream with a native population of cutthroat trout.
3. EIS Para 4-137: Plants and animals that are protected species have not been considered in the past as major problems complicating construction at McChord AFB, although isolated sitings have occurred. Critical habitat is not present nor has been documented in the area.
4. EIS Para 4-144: Question concerning the Bethel School District. Although it is likely that some OTH-B personnel would reside in the school district, it is highly unlikely that all of them would reside in that area due to the cost of housing and other closer affordable homes.

FOR THE COMMANDER

  
RONALD J. WEEDEN, Col. USAF  
Base Civil Engineer

62

## OFFICE OF HISTORIC PRESERVATION

DEPARTMENT OF PARKS AND RECREATION

POST OFFICE BOX 2390

SACRAMENTO, CALIFORNIA 95811



(916)445-8006

May 3, 1983

Refer to: USAF 830428A

HQ ESD/SCU-4  
Mr. Ro Raffa  
Hanscom Air Force Base, MA 01731

RE: Draft EIS West Coast Over the Horizon-Backscatter Radar System  
Rimrock Lake/Lone Pine Butte Receiver Station; USAF 830428A (Modoc Co.)

Dear Mr. Raffa:

Thank you for the opportunity to review the above draft EIS pursuant to 36CFR800.

The preliminary assessment of cultural resources within those areas to be considered for the transmitter station seems to be quite adequate. If those stipulations cited in Sections 4.3.3.9 and 4.4.3.9 are observed, this office will be able to arrive at a determination of effect for those cultural resources within the project area. We understand that all survey and test work will be undertaken in coordination with the Forest Archaeologist at the Modoc National Forest.

If you have any questions, please contact Georgie Waugh at (916)445-6766.

Sincerely,

A handwritten signature in cursive script, appearing to read "Knox Mellon".

Dr. Knox Mellon  
State Historic Preservation Officer



UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF INDIAN AFFAIRS  
Sacramento Area Office  
2800 Cottage Way  
Sacramento, California 95825

MAY 6 1983

Air Force Electronic Systems Division (ESD/SCU-4)  
Hanscom Air Force Base, Massachusetts 01731

Gentlemen:

We have reviewed the Draft Environmental Impact Statement on the proposed West Coast Over The Horizon-Backscatter (OTH-B) Radar System and found no Indian lands under the jurisdiction for this office are involved.

Sincerely,

*Eddie V. Edwards*  
Assistant Area Director-Resources



# Board of Commissioners

## Lake County

STATE OF OREGON

LAKEVIEW, OREGON 97630

GEORGE CARLON

LOUIS LAMB

ARTHUR SHEER



May 18, 1983

Department of the Air Force  
ESD/SCU-4  
Hanscom AFB, MA 01730

Dear Sirs:

The Lake County Board of Commissioners would like to make the following comments on the Draft Environmental Statement of March, 1983 by the Department of the Air Force for the Continental United States Over-The-Horizon Backscatter Radar System. Both transmitter sites proposed are to be located near Christmas Valley in Lake County, Oregon:

(1) Safe distance for handling Electroexplosive Devices. Lake County has two existing aggregate sites in the Christmas Valley area as identified on the attached map. The ES states that safe distances would not be known until soil conductivity measurements are made and when these distances are known certain persons would be notified. The ES should have had these measurements in its data, so that impacts could be determined and mitigating measures proposed, so appropriate comment could be made. Good aggregate sites are not readily available in north Lake County and impacts to these sites resulting in abandonment are not acceptable to the County.

12

(2) Road access. The ES states that road improvements would be necessary from the existing County road system to the site selected and those sections currently unpaved would probably be improved with an asphalt or higher quality gravel surface. The County was advised at the public hearing at Christmas Valley on May 10 that the Air Force would be responsible for both any road construction necessary for access to the transmitter site and the cost of that construction. When it is appropriate, the County will expect the Air Force to make contact with the County to coordinate the proposed access routes, review adequacy of existing County roads involved in Air Force activities and any need to upgrade those roads, make available County road standards for construction and discuss cooperative agreements, if applicable, and funding for road maintenance.

42

(3) Christmas Valley Airport. There is concern of potential impacts to the Christmas Valley Airport. The Airport is currently developing a master plan funded by the Federal Aviation Administration with projected improvements of the facilities in the near future. Impacts could come from communications interference and airborne exposure. It is suggested that in addition to a

43



Department of the Air Force  
May 18, 1983

Page 2

formal Notice to Airmen (NOTAM) by the FAA that notations be placed on aeronautical charts generally used by pilots. Any resulting adverse impacts shall be mitigated by coordinating with Airport officials to establish acceptable measures which retains the integrity of the Airport. 43

(4) Impacts to Water Contamination, Plants and Cultural Resources. No comments can be made regarding impacts to these resources as the surveys have not been conducted, so appropriate information and mitigating measures have not been developed for evaluation.

The County looks forward to working with the Air Force with regard to the above concerns.

Sincerely,

LAKE COUNTY BOARD OF COMMISSIONERS

  
LOUIS V. LAMB, Chairman

  
GEORGE E. CARLSON, Commissioner

  
ARTHUR H. SHEER, Commissioner

LCBC/cb  
Enclosure

JOHN SPELLMAN  
Governor



FRANK LOCKARD  
Director

STATE OF WASHINGTON  
DEPARTMENT OF GAME

600 North Capitol Way, GJ-11 • Olympia, Washington 98504 • (206) 753-5700

May 19, 1983

Mr. Ro Raffa  
Air Force Electronic Systems Division (ESD/SCU-4)  
Hanscom Air Force Base, Massachusetts 01731

DRAFT ENVIRONMENTAL IMPACT STATEMENT:  
West Coast Over-the-Horizon Backscatter  
Radar System, McChord Air Force Base,  
Pierce County, Washington

Dear Mr. Raffa:

Your document has been reviewed by our staff as requested; our comments follow.

McChord Air Force Base (AFB) is one of three candidate sites for the operations center of this project. As indicated in this document, McChord AFB has a number of sensitive environmental features, including ponds, fresh water marshes, and Clover Creek. The document states that "the proposed operations center site is on the periphery of the developed base property." However, the relationship between this proposed location and sensitive environmental features is not illustrated. We recommend that any operations center on McChord AFB be located adjacent to developed areas and a minimum of 100 feet from any stream, ponds, or wetlands. The buffer area created by this 100-foot setback should be retained in natural vegetation.

44

Thank you for sending your document. We hope you find our comments helpful.

Sincerely,

THE DEPARTMENT OF GAME

*Betsy Wolin*

Betsy Wolin, Applied Ecologist  
Environmental Affairs Program  
Habitat Management Division

BW:cv  
cc: Agencies  
Region

21 May 83

ESD/SCU-4  
Mr. Ro Ruffa  
Hanscom AFB, MA 01731

Dear Sir,

I just recently caught a view of the draft environmental impact statement on the construction and operation of the West Coast OTH-B Radar System. I noted that comments ~~are~~ due on this document by June 10, 1983. As I do not have a copy of the document and the deadline for comments is far less than twenty days, I'd like to get a copy of the entire document as soon as possible. Further, I believe an extension should be granted ~~on~~ <sup>for</sup> comments on the environmental impact.

As an amateur radio operator and technical representative for all amateurs in Washington, under the American Radio Relay League, I am very concerned about the power this ~~OTTH~~ OTH-B Radar will be using. Typical amateurs run 100 watts output into dipoles. This OTH-B "gismo" is running 1.2 megawatts (at least that's what someone told me). That's 12,000 times more power than most amateurs run when talking

all over the world. Even at these low power levels, amateurs & CB operators, have plenty of problems with BCI & TVI. Further, I imagine the AF will be using highly directional antennas, thus, increasing the relative power they are radiating and potentially creating havoc on the HF bands.

46

Therefore, for the reasons of high power, relative nearness to Washington, little time to respond to the EIS, I request that I be issued a complete copy of this document and that the deadline for comments be extended 90 days.

45

Kurt W. Heidergott, K7UUU  
503 167TH NE  
Bellevue, Wash 98008

1215 N 28 Pl.,  
Renton, Washn.  
22 MAY 1983

Dept. of Air Force,  
ESD/SCU-4,  
Hanscom AFB, Mass.

Responding to the request for comments on the EIS of USAF OTH-B radar system planned for southern Oregon, I have the following to offer. Addressing only that portion dealing with amateur radio and specifically paragraph C.3.1.2.1, pages C-22 and C-23, there are the following errors in the EIS.

1. The EIS does not address all of the amateur bands allocated or permitted to be used by United States amateurs on frequencies between 7.0 and 29.7 Mhz. Three new bands were allocated during WARC-79 and are presently in use in the world. OTH-B must also lock these bands out of the system. 47

2. The 3rd paragraph attempts to eliminate the possibility that the system can cause interference by citing an article in QST, April 1980. In my investigation about this article I found that there were some readers who thought the article was an "April Fools Story" and not to be credited. I also found some who believed the article and asked USAF for tape recordings of the signals. I also asked for a tape. Those asking for a recording never received same and in my case my letter was not even answered. I suspected then that there was something of an April Fools story connected with the OTH-B/ERS in QST. 48

3. QST reaches approximately one-fourth of all licensed amateurs in the USA. In other words the article, if true and believable, failed to cover three-fourths of the possibilities for reporting ERS interference. Why USAF limited the distribution of information and failed to respond to requests regarding the ERS is part of the question about the validity of the EIS and the cited paragraph. 49

4. I disagree with the conclusions reached in the last paragraph of C.3.1.2.1. The fact that no reports were received is not evidence of the ERS operating without interference but is evidence that the survey was limited to so very few and with so very little information available on which to base a report of interference. I do not think that the conclusion reached would support ERS if the information about ERS had been better distributed and better material available to amateurs about the system. Further, many of the amateurs who would have been affected by the ERS would not have received the QST magazine because they live overseas and outside the normal distribution area for QST. ERS should have been publicized in many other publications both in the USA, Canada, and the European theatre so that best input could have been received. 50

5. Finally, the next-to-last paragraph explains that ERS signals "if heard on an AM receiver, would sound like an hum ---." Unfortunately, many amateurs do not possess AM receivers. Many of the modern amateur units are just not equipped to receive "AM" transmissions. As a consequence, the lack of ability to receive the ERS signals, coupled with the lack of information from USAF on the transmissions, and a failure by USAF to provide tape recordings of the ERS signals, completely invalidates the conclusions reached in C.3.1.2.1. and should not be considered as worth merit in the EIS. USAF did not do their homework and should not proceed with the OTH-B radar until much more exploratory work has been done in the field of radiation. 51

If there are future distributions made regarding ERS or OTH-B radar systems,  
I would like to be on the distribution list. Your consideration is appreciated.

Sincerely,



M. L. Gibson, W7JIE,  
1215 N 28 Pl.,  
Renton, Wash. 98056  
206-226-4222

827 N. 2nd St.  
KLAMATH FALLS, OR 97601  
MAY 22, 1983

To whom it may concern,

As I read through the E.I.S. on the over-the-horizon backscatter system, the first question that comes to mind is, "Why do we need this system in the first place?"

It seems to be taken for granted that we will have this system, that the decision's already been made. Why is this decision, or the logic behind it, not documented? If the information is elsewhere, I'd like to be informed.

If the decision's already been made, then why even have a 'no action' alternative? Of course, you're required by law to include a no action alternative, so you put in a paragraph. But if no action is not seriously considered, have you met the spirit of the legal requirements? I think so far you haven't.

Consider the following excerpts from the National Environmental Policy Act;

"The alternative of taking no action must always be included."

"Alternatives should be fully and impartially developed "

"The appropriate affects of implementing each alternative must be estimated."

To me, a no action alternative should be more completely analyzed and documented, These are statements I hope you will address

Sincerely,  
Lee Tolva

827 N 2nd St.  
KLAMATH FALLS, OR 97601  
MAY 22, 1983

Mr. R. L. Raffe  
HQ ESD/SCU-4T  
HANSCOM AFB, MA 01731

Greetings!

As I read through the E.I.S. of the OTH-B system, something seems to be missing. The decision-makers in Washington must think this is a significant contribution to our nation's overall defense strategy to invest so many millions of dollars in its planning and implementing.

Now as I understand the word 'significant', according to the National Environmental Policy Act, something significant requires consideration of context and intensity. After 'context' they state, "SIGNIFICANCE must be analyzed in several contexts such as society as a whole, region... locality."

You cover the affects within a narrow band (our locality) well I guess, but seem to completely leave out a wider context.

For example, if this system is of significant strategic importance for the west coast, or the nation, isn't it logical to assume the consequence of this action might be to make K. Falls a more significant military (or perhaps nuclear?) target?

In my ~~own~~ opinion, you completely neglect to address this issue. I look forward to your response.

Sincerely,  
Lee Torba

-P.O. TO: Sene HATFIELD, PACAWOOD  
Cong S.Mitt





# United States Department of the Interior

IN REPLY REFER TO

2330

BUREAU OF LAND MANAGEMENT  
P.O. Box 151  
Lakeview, Oregon 97630

May 23, 1983

Air Force Electronic Systems Division (ESD/SCU-4)  
Hanscom A.F.B. Massachusetts 01731

RE: BLM Lakeview District comments to Draft EIS, West Coast Over the  
Horizon Backscatter Radar System.

Item - - Electro Explosive Devices - EEDs

Dear Sir:

It is understood that a safe separation distance will be determined from  
the transmit site.

What is not clear is the mitigating action taken after this distance is  
established.

The Draft EIS on page 4-68 states that "The Air Force will notify surrounding  
land owners, the BLM, and other state and local government offices so that they  
may take any actions they consider appropriate." We believe it should be  
made clear that the responsibility for appropriate action remains with the  
Air Force, not surrounding land owners, the BLM, or anyone else. It is  
suggested that the safe perimeter for EEDs be well marked with signs, and  
the signs maintained on a regular basis by the Air Force.

Item - - Forage Adjustments

The following table depicts the present situation regarding the two allotments  
affected by location of the receive site:

<u>Allotment</u>	<u>Total Public Land Acres</u>	<u>AUMS Available to Livestock</u>	<u>Ave. Rate Ac/AUM</u>	<u>Active Grazing Pref.</u>	<u>Difference</u>
Peter Creek	13,800	987	14	329	+658
Viewpoint	524,180	29,169	18	32,657	-3488

In the Peter Creek Allotment, available forage exceeds the grazing preference  
by 658 AUMS, therefore, there would be no loss of preference until more than  
658 AUMS were lost. This would involve over 9,000 acres of land.

In the Viewpoint Allotment, a pending adjustment in grazing preference is being held in abeyance pending the allocation to livestock in the Prineville District. It is anticipated that surplus forage occurs in that district. The user of the Viewpoint Allotment, ZX Ranch, has a grazing preference in the Prineville District, as well as the Viewpoint and Paisley Common Allotments in the Lakeview District. The surplus forage in the Prineville District is anticipated to be sufficient to offset the shortage in the Lakeview District, including the loss of up to 150 additional AUMS if the entire transmitter site was located in this allotment.

13

Thank you for the opportunity to comment on the draft EIS.

*Edwin L Depauli*

*Area Mgr.*

# MIDSTATE ELECTRIC COOPERATIVE, INC.



Post Office Box 127  
LaPine, Oregon 97739  
Phone 536-2126

May 26, 1983

Mr. R.L. Raffa  
HQ. ESD/SCU-4T  
Hanscom A.F. Base, MA 01731

RE: Draft Environmental Impact Study

Dear Mr. Raffa:

Following the review of the draft, one particular section which relates to the economic benefits provided to the immediate area was not mentioned. Specifically, the economic benefits of allowing the local member/consumer owned electric utility to serve the electric load on a comparative basis. The proposed electric load is equivalent to approximately 50% of the existing system load. That would be a significant economic impact to the region and in particular to the member/consumer owners of the non-profit electric cooperative serving the area.

In the near term, the economic benefits would be to the existing member/consumer in that the costs of operation of the serving electric cooperative would be spread over a much larger system usage. The cooperative is operated on a non-profit basis; therefore, in the long run, the government should see the benefits in the contained utility costs. The member/consumers of Midstate Electric Cooperative, Inc. are aware of this fact and deciding of the OTH-B System in Christmas Valley will be very well accepted if Midstate Electric Cooperative, Inc. is allowed to serve the load.

Your consideration in this matter is appreciated.

Sincerely,

C.C. Grevel  
President

JLS/dml  
CC: Directors

May 30, 1983

Mr. Raffa  
HQ ESQ SCU 4T  
Hanscomb A.F.E.  
Maine, 01731

I am responding to the EIS for the OTH-BR with strong objections that it be installed in Klamath Falls. Air Force studies regarding the 'safety' of this project are questionable in the light of greater scientific research.

It is generally agreed that Air Force studies are far from definitive, and self-servingly biased. Among scientists (other than hired consultants for the Air Force) there is much conflicting data regarding radiation from electromagnetism, and this area needs a great deal of further study before humans are subjected to increasing doses of it.

My sources of information point to the fact that research centers are closing, instead of continuing important work in this field. In fairness to all citizens exposed to this radiation, I demand more unbiased safety controls. Not only my health, but the health of my children and grandchildren is at stake.

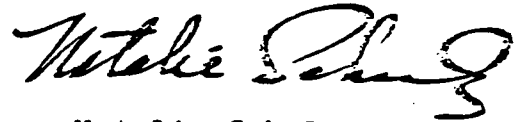
American National Standards Institute guidelines have been rejected by scientists in this field as being heavily slanted toward industry, and thus toward the military. As a citizen I demand both sides of the safety issue be given to the public.

I would appreciate specific answers from the Air Force on these issues:

- |                                                                                                                                       |    |
|---------------------------------------------------------------------------------------------------------------------------------------|----|
| * What range of frequency should be included in guidelines for public safety?                                                         | 17 |
| * Why has the EPA so blatantly neglected this area of research?                                                                       | 18 |
| * What conceptual approach should be used to develop limits of exposure?                                                              | 19 |
| * What is the threshold for biological effects?                                                                                       | 20 |
| * What is a reasonably acceptable limit of cumulative exposure?                                                                       | 21 |
| * Many Oregonians in both Lake County and Klamath Falls are already high-risk persons. Is it right to subject them to more radiation? | 22 |

Your responses to my concerns will be appreciated.

Sincerely,



Natalie Schulz  
2059 Lakeshore Dr.  
Klamath Falls, Oregon 97601

cc/

Senator Mark Hatfield (R-OR)  
Senator Bob Packwood (R-OR)  
Representative Bob Smith (R-OR)  
William Ruckelshaus, Dir.EPA

VICTOR ATIYEH  
GOVERNOR



OFFICE OF THE GOVERNOR  
STATE CAPITOL  
SALEM, OREGON 97310

May 31, 1983

Mr. Ro Raffa  
US Department of the Air Force  
Headquarters-Electronics System Division  
Hanscom Air Force Base  
Massachusetts 01731

Dear Mr. Raffa:

We know the Air Force has put many hours in the development of the current Environmental Impact Statement (EIS) for the Over-The-Horizon Backscatter (OTH-B) Radar Program.

We feel a very good job has been done on the EIS and do not see any need for further studies which would put unnecessary delays in reaching the final decision for the location of the OTH-B installation.

The State of Oregon and the citizens of Klamath Falls are anxiously awaiting to welcome the Air Force to Kingsley Field.

Sincerely,

Victor Atiyeh  
Governor

VA:tw

cc: Senator Hatfield  
Senator Packwood  
Congressman Bob Smith



## ASSOCIATION OF NORTH AMERICAN RADIO CLUBS

Richard T. Colgan, Executive Secretary

Robert Horvitz  
Chairman, OTH-B Radar Committee

Mr. R. Raffa  
ESD/SCU-4  
Hanscom AFB, MA 01731

1 June 1983

Subject: Comments on Draft Environmental Impact Statement, West Coast Over-the-Horizon Backscatter Radar System

Dear Mr. Raffa:

As you know, the Air Force's decision to seek funding to build OTH-B radar systems in the Continental US sparked concern in the shortwave community about potential interference to communications services using the same and adjacent bands. As a result, representatives of the fourteen clubs that together comprise the Association of North American Radio Clubs (ANARC) voted last year to form a committee to monitor developments in OTH-B radar, and to represent ANARC's interests in minimizing OTH-B radar interference. The ANARC OTH-B Radar Committee has studied the Draft EIS for the West Coast part of the system, and we wish to make the following comments. For convenience, we present these comments in the page order used in the Draft EIS:

Page S-2: The list of "major concerns" expressed during scoping includes "interference with ham radio operators, television, FM radio, CB radio, and land and maritime mobile radio". While these concerns were indeed expressed in a letter to you from Robert Horvitz (dated 18 September 1982), the first concern expressed in that letter was interference "to other users of the shortwave spectrum" in general. By citing services noted in the letter as potentially affected by the radar's harmonic and spurious emissions, but not those that would be affected by the radar's fundamental emissions - namely, the fixed and international broadcasting services - you have actually omitted the main concern of the letter. Thus, we ask you to modify the first entry in the list of major concerns expressed by the public to read, in the final EIS:

"interference with ham radio operators, television, FM radio, CB radio, land and maritime mobile radio, and other authorized users of the HF radio spectrum - in particular, international broadcasting and fixed radiocommunication services."

Pages S-4 and S-5: The discussion of electromagnetic interference in the summary chapter and in Appendix C fails to point out that the International Table of Frequency Allocations, ratified by the US Senate as a treaty last December, does not include any allocation for OTH-B radar operations anywhere in the shortwave band. Thus, the US Government cannot assign shortwave frequencies for this purpose "except on the express condition that harmful interference shall not be caused to services operating in accordance with the provisions of the Convention and of these Regulations" (Article 6, #4, International Radio Regulations, Geneva, 1979). We believe that the US's treaty obligation under the 1979 Geneva Agreement should be explicitly acknowledged in your discussion of electromagnetic

interference, since it should be an important consideration in deciding whether or not to implement this project. The US's treaty obligations are certainly part of the "human environment" which might be adversely affected by the radar. If it is impossible to operate the radar under the guidelines described in the Draft EIS without violating international law, we would like this point clearly stated, and its implications discussed, in the Final EIS.

Page 3-5: We applaud your candor in acknowledging that "monitoring at one place does not guarantee that a channel is unoccupied through the world. Thus, the radar could be operated on a frequency already occupied. If that occurred, the radar could interfere with reception at distant receivers. Such a receiver might be anywhere on earth..." However, while it is true that monitoring at one place won't reveal worldwide channel occupancy, the Air Force has - or has access to - HF monitoring assets around the world. There is no reason why OTH-B radar operators should have to rely solely on monitoring at the transmitter site to determine whether or not a given channel is in use. We believe the Air Force could easily and substantially reduce the risk of interference by taking advantage of HF monitoring assets elsewhere in the world, using this input to help rank and select frequencies for OTH-B radar operations. If this eminently practical mitigation measure is unacceptable, please explain why in the Final EIS.

On page 3-5, paragraph 2, we object to the following as an oversimplification which makes propagation of the radar's signal seem impossible to predict, thus making mitigation of interference seem impossible - when this is not the case:

"...there is no general way to determine whether the radar's signal would reach /a particular receiver/, and if the radar's signal did reach it, whether the radar's signal would be strong enough relative to the desired signal to produce interference."

This may be true in a strict sense, but one can nonetheless speak in terms of probabilities, of likely field strengths in particular areas for particular frequencies at certain times of day - and draw meaningful distinctions between, say, southern California and Alaska, both of which, we believe, could be illuminated by the West Coast radar's reflected sky wave beam about 12% of the time, and, say Ohio, which would not receive that kind of illumination ever. Report AP/6, adopted at the XVth Plenary Assembly of the International Consultative Committee for Radio (CCIR) last year, provides a method for making such field strength calculations for distant areas. The US Interdepartmental Radio Advisory Committee (IRAC) says, "This method represents the best compromise between accuracy and the simplicity required for practical computer applications."\* We ask that this method - or another the Air Force thinks is better - be applied to the West Coast OTH-B radar, and that the Final EIS contain contour maps of the United States showing field strength estimates for some typical radar frequencies and beam azimuths at 1400 and 0200 UTC in each of the four seasons. Please include the back-lobes. With a combined power of 20-30 kw they are non-trivial. We further ask that you identify all US land areas that would be routinely illuminated by the radar's first-reflection front-lobes due to their being within the radar's surveillance coverage, and discuss RF interference as a potential impact in these areas.

We object to the above passage's continuation: "Operation of the ERS for approximately 1 year resulted in no valid reports of interference from either

\*FCC Docket 82-165, First Report, adopted 27 April 1983



Fixed Service stations or from listeners on the international broadcast bands." Similar claims appear elsewhere in the Draft EIS (e.g., pages C-19 and 4-63). We congratulate the Air Force on their excellent record in testing the ERS, but we must point out that the ERS was not "operated" for "approximately 1 year". A year may represent the overall test period, but page C-18 says the ERS transmitted for only about 900 hours during that period - the equivalent of 5½ weeks if operated continuously, as the full-scale OTH-B radars would be. Moreover, according to page C-18, the test transmissions usually occurred during the night/day and day/night ionospheric transition, presumably over the northwest Atlantic. Thus, many test transmissions occurred during the hours right before dawn in North America. This is a time of very low channel occupancy, when propagation is unstable, and when hardly any ham radio operators, shortwave listeners or Fixed Service providers were even awake. We think that repeated reference to the ERS "operating" for "a year" without complaint of interference is misleading in two ways: it significantly overstates the actual time that the transmitter was on, and it inaccurately suggests that we could expect a similarly benign performance from the operational OTH-B radars. In fact the ERS is not comparable to the operational radars in these (and other) ways: its power was less than a third of the West Coast system's maximum; it utilized only one frequency band at a time, compared to the three-at-once of the West Coast system and the six-at-once of the East and West Coast systems taken together; it had only a single beam confined to a 30° arc, compared to the three beams covering 180° for the West Coast system and six beams covering 360° for the East and West Coast systems taken together; it did not operate (so far as the Draft EIS indicates) during times of peak HF band occupancy or of peak HF reception, as the operational radars would. To repeat, while we congratulate the Air Force on their excellent record testing the ERS, we believe that the repeated assertion that it had been "operated" for "a year" without complaint of interference is quite misleading in the context of the Draft EIS. We ask that these assertions either be reworded to state the actual transmitter-operation time and the limited comparability of the ERS to the West Coast system, or be deleted in the Final EIS.

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Pages S-5 and S-6: The following passage requires clarification:

"Because the harmonics would typically be at frequencies far above the HF band, they would not propagate by sky wave to distant regions; thus, any interference effects would be strictly local."

This statement is only correct if the radar would typically operate above 15 MHz. Otherwise, the second harmonics of frequencies below 15 MHz, the second and third harmonics of frequencies below 10 MHz, the second, third and fourth harmonics of frequencies below 7.5 MHz, etc., would in fact fall within the HF band, and at certain times they could propagate by sky wave to distant regions. Thus, we ask that you either revise the above passage to read:

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"Because the radar will typically operate at frequencies over 15 MHz, its harmonics would be above the HF band and would be unlikely to propagate by sky wave to distant regions; thus, most harmonic interference effects would be strictly local."

- if that is the case. If it isn't (i.e., if the radar wouldn't typically operate above 15 MHz), please state that some of its harmonics would fall into the HF band and they could at times propagate by sky wave to distant regions where they might interfere with other signals. (Note: since the noise levels of the HF bands below 15 MHz are already so high, the addition of even more man-made noise could reduce the number and variety of intelligible signals in those bands by

much more than the same new noise would if it were added to the higher HF bands. It would alleviate some of our concern about the impact of the OTH-B radars if we knew that they would primarily operate above 15 MHz.)

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Pages 3-11, 2-12 and 4-156: The range of "Alternatives Considered", as reported in the Draft EIS, is unjustifiably narrow, implying a lack of viable alternatives, and virtually channelling decision-makers who would read the EIS into thinking that there are no alternatives to building the West Coast OTH-B radar right away. Evidence that this is not the case can be found in several authoritative publications. An unclassified digest of a classified report issued by the General Accounting Office last March (GAO/C-MASAD-83-14) was, as you undoubtedly know, very skeptical about the OTH-B projects. It recommended that the Secretary of Defense direct the Air Force "to fully reassess...the status of efforts to develop more endurable tactical warning systems" - more endurable than the OTH-B, that is - "and the potential and cost effectiveness of using existing airborne warning assets to strengthen surveillance coverage against a surprise bomber attack until a more endurable system than OTH-B can be deployed". Apparently, the GAO thinks there not only are other viable alternatives, but that the OTH-B radars are not the best among them. They indicate also that new alternatives may soon be available. This contradicts the Draft EIS:

"No alternative methods of radar surveillance will be available in the foreseeable future to substitute for OTH-B." (page 4-156)

"No alternative means of radar surveillance and tracking will be available in the foreseeable future to substitute for the OTH-B. From this point of view, postponing construction and operation of the West Coast system is equivalent to the no-action alternative until the decision is made to go ahead." (page 2-12)

We note that Great Britain (which is well aware of the capabilities of OTH-B radar) has opted to build a fleet of early-warning radar aircraft (Nimrods) instead of an installation like that proposed in the Draft EIS. Granted that the needs and circumstances of the British are different from our own, their decision underscores the fact that a fleet of airborne early-warning aircraft like AWACS is a realistic alternative.

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There is another alternative in radar satellites - if not right now, then at least in the foreseeable future. An article by Dr. Desmond Ball of the Australian Strategic and Defence Studies Centre, published in 1978, said that "recent testimony on the HAIO and Teal Ruby programmes /in the US/ suggests that in five years or so spaceborne surveillance systems will also be able to detect tactical aircraft." (Electronics Today International, February 1978, page 37) It is now five years later. We must note that the Air Force intends to launch a sophisticated ionospheric research satellite, HILAT, this summer. It may yield new information about the potential of radar surveillance satellites. It would seem only prudent to wait until the results of the HILAT mission have been analyzed before dismissing radar satellites as an alternative to OTH-B radars. Satellites may prove more reliable, broader in coverage and less environmentally-impactive than the OTH-B radars. This contradicts the claim made on page 4-156 of the Draft EIS that "no apparent environmental benefit would be gained by postponement." If postponement enabled a superior and less environmentally-impactive alternative to emerge, and that alternative were taken, there would be an environmental benefit.

Even within the realm of OTH-B radar technology there is the possibility of improvement with time - as well as the possibility of changes in the electromagnetic environment that could impede OTH-B radar operations. As for the first, we ask: would additional research, development, testing and experimentation be able to yield an OTH-B radar that could perform as well as the design proposed in the Draft EIS, but with lower transmission power or shorter dwell time? If the answer is yes, we see this as an "environmental benefit to be gained by postponement" - which should be noted in the Final EIS. Lower power and shorter dwell time would reduce the probability of harmful interference to other users of the HF spectrum.

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As for changes in the electromagnetic environment, the HF broadcasting bands are already so heavily over-used that international broadcasters are increasingly moving out of band. Even the Voice of America has done so. If the HF Broadcasting WARC in Geneva next January fails to establish principles for more effective utilization of the existing bands, it is likely that the breakdown of order and the "power war" will not only continue but accelerate. While we do not argue that the Air Force should defer to broadcasters who use unauthorized frequencies, we do think that a proliferation of powerful broadcast signals into the Fixed Service bands where the OTH-B radars would primarily operate may restrict or degrade radar operations to a degree not foreseeable by anyone.

These points are raised in contradiction to the claim on page 4-156 of the Draft EIS that "Neither the characteristics of OTH-B operation nor the affected characteristics of the environment would change with the passage of time." We ask that this claim be deleted in the Final EIS, as it is probably unsupportable and/or incorrect.

Finally, we have reason to suspect that the Air Force has actually considered alternatives such as AWACS and radar satellites, so that their omission from the Draft EIS's discussion is even less justified. Last summer (before the "Notice of Intent to Prepare a Draft EIS" for the West Coast OTH-B radar appeared in the Federal Register), Aviation Week & Space Technology reported that the integrated tactical surveillance system program, in which the Air Force and Navy are cooperating, was to study "the proper force mixture of the over-the-horizon radar and radar spacecraft for both strategic and tactical applications. The initial report is to be submitted to the Pentagon by November /1982/." (AW&ST, August 23, 1982) This suggests not only that the Air Force does recognize radar satellites and OTH-B installations as somewhat interchangeable, but that it actually studied some alternative mixes prior to completion of the Draft EIS.

To sum up, we reject the Draft EIS's discussion of "Alternatives" to the proposed project as both inadequate and inaccurate. We ask that this discussion be revised and substantially expanded to include the alternatives that the Air Force is known to have available to it and to have actually considered prior to completion of the Draft EIS. We further ask for responses to the arguments we have raised about the environmental benefits to be had from choosing the alternatives of radar spacecraft or postponing deployment of the OTH-B radars. To the reply that comparing satellites and coast installations is like comparing apples and bananas, we say: if that's the kind of choice decision-makers

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are actually confronting, the EIS should disclose that fact, and discuss the difficulty - not hide it.

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Page S-12: Perhaps the single most objectionable aspect of the Draft EIS, from our point of view, is the absence of measures for dealing with specific instances of interference to other users of the HF Broadcasting and Fixed Service bands. Such mitigation measures are proposed for harmonic interference to TV translators, VHF land mobile, air mobile and VOR navigation stations (pages 4-64 to 4-66), but not for services in the bands where the radar's primary emissions would occur. We protest this as unfair - and remind the Air Force that under the terms of the International Radio Regulations, they have no right to use any HF band for radiolocation "except on the express condition that harmful interference shall not be caused to services operating in accordance with the provisions of the Convention and of these Regulations."

The difficulty of predicting when or where or how often interference might occur does not reduce the Air Force's responsibility to avoid causing interference to the maximum extent possible - or entitle it to persist in interference when it occurs. Because the OTH-B radars would not have any internationally recognized spectrum rights, they must not only avoid causing interference to stations that do have such rights, they must be prepared to respond to complaints of interference: to validate those complaints, and to mitigate the problems reported.

We understand that the radar operators would try to avoid using frequencies they discover are already in use; that the radars can be "stepped down" in power when propagation is good; that co-channel interference would be episodic rather than continuous. We applaud the statement on page C-19 that Air Force "policy is to conscientiously avoid the use of the SWBC (short wave broadcast bands) wherever possible." But we feel these measures are inadequate.

First, we seek clarification in the Final EIS of the phrase "wherever possible." While it seems to express good intentions, it also implies that frequencies in the HF broadcasting bands would be used under certain circumstances. What circumstances? Without a public statement of policy, the Air Force would be free to interpret "wherever possible" as "whenever we feel like it". The Final EIS seems like the appropriate place to go "on record" with a more explicit statement of band selection policy.

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We have already proposed that the Air Force use information from HF monitoring assets elsewhere in the world to increase its OTH-B radar operator's awareness of what frequencies are being used. This information could be factored into the frequency ranking and selection process described on pages C-4 through C-7, at the step labelled "Environmental Analysis Operator". Because southern California and Alaska would each be illuminated by the West Coast radar's beam about 12% of the time, we ask that monitoring data from those regions especially be taken into account. The monitoring equipment should be located in or near significant population centers, where larger concentrations of shortwave listeners could be expected to be found. Since Japan could at times be illuminated by the second ionospheric reflection of the radar's signal, we also suggest utilizing monitoring assets there (Yakota Air Base, for instance). And while this is outside the scope of the EIS for the West Coast installation, we'd also like to suggest that monitoring input from Europe to the East Coast OTH-B radar be

considered for exactly the same reason (second "hop" illumination of much of northern and western Europe by the East Coast installation's northernmost sector). Secure satellite links between each radar's Environmental Analysis Operator and these remote monitoring assets would enable the EAO to query the assets in real-time about particular channels and bands. The remote assets could even be operated remotely by the EAO.

Another type of input to the frequency ranking and selection process not mentioned in the Draft EIS, which we nonetheless feel could be useful in avoiding interference, is schedule information about HF channel use when such usage is regular, planned and/or predictable. The Voice of America, Radio Free Europe/Radio Liberty, the Armed Forces Radio & Television Service, the BBC, etc., all have relays that operate daily on more or less regular schedules in the Fixed Service bands the OTH-B radars would use. A quick check of frequencies currently used by the above agencies shows that they have over fifty Fixed channels that could experience co-channel interference from the OTH-B radars. We think it unnecessary to add them to the radars' "forbidden lists". Instead, we urge the Air Force to set up some means for taking into account advanced notifications, current schedules and "recent channel histories" when choosing frequencies, to better avoid causing interference. Given the limits of monitoring that were described in the Draft EIS, we think that there must be some input to the frequency ranking and selection process that goes beyond the Air Force's own monitoring efforts, even assuming those efforts were to be expanded as we recommend here.

To be more specific, we urge the Air Force in the strongest possible terms to set up an office connected with the Environmental Analysis Operator at each OTH-B radar to process notifications of HF band usage and complaints of interference. This office should be equipped with a Telex terminal, whose address or access number would be made known to anyone with an interest in reporting interference, or with an interest in providing the radar operators with advanced notice of their HF frequency usage. This office should also have an "800" telephone number for receiving similar comments by voice. This number should be made known to US radio amateurs, shortwave listeners and HF Fixed and Broadcasting stations. Going a step further, we recommend that the Air Force set up telephone numbers in Japan and Western Europe to receive interference complaints from those areas. Those numbers should somehow connect to the monitoring assets.

Last January, USAF Col. Arnold L. Snyder, Jr., wrote us promising that "New operational procedures for handling QRM will be developed at a later date." In view of the fact that the OTH-B program reneged on its promise to set up a "special board of QRM experts" (as stated in QST, April, 1980), and in view of the absence of anything like Col. Snyder's promise, even, in the Draft EIS, we cannot be satisfied with vague hopes for future attention to interference mitigation. We would like specific procedures for accepting and processing complaints of interference to other users of the HF band to be spelled out in the Final EIS.

We would also like this statement put in the Final EIS at the appropriate point:

"If a complaint of interference is received, it will be evaluated promptly. If found to be valid, and if the interference condition still exists at the time of validation, the radar will be taken off the offending frequency immediately."

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For this commitment to mean anything, the radar operators must be able to receive real-time notification of interference "from the field". This is why we urge that access to the Environmental Analysis Operator be provided via telephone and Telex.

Page 3-2: We were happy to see that when considering electromagnetic interference, the Draft EIS defines the "potentially affected environment" as "almost any part of the world...actually the HF spectrum in distant parts of the world." However, we believe that special note should have been taken in Appendix C of Alaska and southern California as parts of the affected environment likely to be affected to a much higher degree by interference, since, according to Figure 1-1 in the Final Draft Supplement to the EIS for the East Coast OTH-B radar, these areas are both within the West Coast radar's surveillance coverage. The Draft EIS for the West Coast radar does not reproduce this diagram, or mention specifically that these two areas would be illuminated by the radar's reflected sky wave beam about every 80 seconds. We ask that this be made explicit in the Final EIS - if it is still true - and the implications be discussed in terms of potential interference to other users of the HF spectrum, especially shortwave listeners living in these areas.

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Page 4-58: Please add "synergism between RF radiation and drugs affecting the central nervous system" to the list of "Unresolved Issues", with appropriate reference to the all-too-brief discussion on page 4-44. We hope that some Air Force research is being devoted to this question as it has broad relevance to many exposure situations in and out of the Air Force.

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Page 4-79: Use of \$31 million as the cost of construction of the West Coast OTH-B radar, along with the seemingly innocuous phrase, "Additional expenses would be incurred for electronic and other radar components", is so utterly misleading, it's laughable. The Air Force knows better than anyone that those "additional expenses" are more than ten times \$31 million, and that the true construction cost is closer to \$500 million. Since the General Accounting Office has publicly estimated the cost of both East and West Coast OTH-B radars as "almost \$1 billion" (in Report GAO/C-MASAD-83-14), and the two installations are almost identical, there's no secret about the real cost. We ask that the Final EIS state the amount that the Air Force plans to ask Congress to appropriate for the total construction cost of the West Coast OTH-B radar, and delete the ludicrous figure of \$31 million.

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Page C-5: the chart has a typographical error: "Ane" should read "Area".

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We thank you for enabling us to comment on the Draft EIS. We hope you find our criticisms and suggestions useful. As per 40 CFR 1503.4(b), we expect this commentary to be "attached to the final statement whether or not the comment is thought to merit individual discussion by the agency in the text of the statement." Of course, we think our comments merit discussion in the text. Per 40 CFR 1503.4(a), if you disagree, please "explain why the comments do not

warrant further agency response, citing the sources, authorities, or reasons which support the agency's position and, if appropriate, indicate those circumstances which would trigger agency reappraisal or further response."

Sincerely,

*Robert Horvitz*

Robert Horvitz  
Chairman, OTH-B Radar Committee  
Association of North American Radio Clubs  
54 East Manning St.  
Providence, RI 02906  
401 - 273-9605

The Members of the Association of North American Radio Clubs:

American Shortwave Listeners Club  
Canadian International DX Club  
Club Ondes Courtes du Quebec  
Handicapped Aid Program, USA, Inc.  
International DXers Club of San Diego  
International Radio Club of America  
Longwave Club of America  
Miami Valley DX Club  
National Radio Club  
North American Shortwave Association  
Ontario DX Association  
Radio Communications Monitoring Association  
Society to Preserve the Engrossing Enjoyment of DXing  
Worldwide TV-FM DX Association

ANARC Associate Members:

Association of Clandestine Radio Enthusiasts  
Canadian Handicapped Aid Program  
Minnesota DX Club  
University of Manitoba DX Club  
Washington Area DX Association

ANARC Affiliate Organizations:

European DX Council  
South Pacific Association of Radio Clubs  
New Zealand Radio DX League  
Southern Cross DX Club  
World DX Club

17575 Jordan Rd. St. Rt.  
Redmond, Oregon 97756  
June 2, 1983

Comments on proposed OTH-B Radar in Oregon

Mr. Ro Raffa  
ED ESD/SCU-4  
Hanscom AFB, Ma 01731

A basic omission in the Environmental Statement is that the radar system would turn the area into a strategic target. This needs to be admitted in the Environmental Statement, including the area of probable impact and likely downwind fallout areas.

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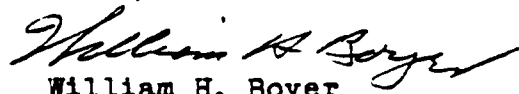
It is unacceptable to categorically presume that the Soviets, with their 7000 plus strategic nuclear warheads, would not target this installation. It is intended as part of the American strategic defense system, and with the large amount of overkill in the U.S. and Russia the targets on both sides are likely to include not only first priority targets but also second priority targets. Would the Air Force claim that it does not target any installation in the Soviet Union which the Soviets call "defensive"? To claim the Soviets would not target this installation because we call it "defensive" would be quite absurd.

Cities are targets and cities are not offensive weapons. If the radar system is really intended to serve a serious defense function it would be to detect enemy planes which would not want to be detected. Therefore, the radar installation would be targeted for annihilation by the other side.

So do not dismiss the fact that central Oregon would be made a strategic target by this installation. Instead, examine the environmental impacts when it is targeted during a war, including an area around the proposed site, which takes account of a margin of error in the accuracy of ICBMs. Also take account of the targeting of Klamath Falls because Kingsley Field is the support base site.

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I request your reply to the use of the information in this letter.

  
William H. Boyer  
tel. 503-548-6544



1715 NW 9th  
Bend, Oregon 97701  
June 2, 1983

Dear Sir,

I am writing this letter to express a concern. I understand that the Air Force plans to build transmitting antennas at Christmas Valley, Oregon, (Hixley Field). This would be for a new Over-the-Horizon Backscatter Radar system.

I do not want to jeopardize our "peaceful" lives here in Central Oregon. We do not house any strategic weapons or other systems in this area. The paper reported that this idea was received favorably. However, there are many citizens who did not attend the meeting. It was not publicized here in the Bend area. We only found out about it after the meeting was held.

We do not need another radar system here at all. It's 1983 - missiles can be launched by submarines 20 miles off our coastline.

Why make our area a target? I believe that one of your directors Lt. Col. La Forc disagrees with me. However, you know that the Russians have many weapons enough to strike every major target plus any others including radar systems.

This country should stop trying to set up more defense systems. We should strive for peace and a non-nuclear future.

Thank you for reading this letter. A reply will be appreciated.

Sincerely,  
Kathleen Anguole.



*Department of Environmental Quality*  
**CENTRAL REGION**

2150 N.E. STUDIO ROAD, BEND, OREGON 97701 PHONE (503) 388-6146

June 2, 1983

Air Force Electronic Systems Division  
(ESD/SCU-4)  
Hanscom Air Force Base, MA 01731

AQ - Air Force  
Lake County

Ladies and Gentlemen:

These are our comments concerning the proposed over-the-horizon backscatter radar system near Christmas Valley and in Klamath Falls, Oregon.

1. In January 1981, the solid waste disposal site at Christmas Valley was placed on the RCRA Open Dump Inventory because of open burning (letter attached). In addition, in June 1982, Lake County was granted a variance to allow open burning at this disposal site until July 1, 1985. This variance was granted, in part, because of the site's rural nature and relatively low use. If its use is greatly expanded because of the influx of construction workers, continued open burning would be inappropriate and the Department would probably request the Environmental Quality Commission to revoke the variance.

Because of the site's location, it may be difficult for Lake County to upgrade the disposal site. We recommend that the Air Force assume operation of the disposal site during construction of the radar system. Operation would basically entail covering the garbage on a regular basis. Frequency of cover would be negotiated between us, the county and the Air Force.

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The disposal site at Christmas Valley is probably too small to handle any substantial quantities of construction wastes. We suggest that the Air Force establish its own disposal site near the construction area. A permit from this office would be required. We would assist you in locating a suitable site.

2. Sewage generated at temporary or permanent buildings, including mobile structures and travel trailers, must be disposed of in approved sewage disposal systems. These systems shall only be constructed under a permit from this Department. The Air Force should contact us concerning the regulations governing sewage disposal and the procedures for obtaining a permit.

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Air Force Electronic Systems Division  
June 2, 1983  
Page Two

There will be a relatively large number of construction workers who will require living quarters during construction in the Christmas Valley area. It seems logical that the Air Force assure that there is an adequate number of places with necessary means of sewage disposal for these folks to live.

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The Kingsley Field sewage treatment plant should be adequate for this proposal.

3. The attached memo was drafted by our Portland Office and addresses our air quality concerns.

If you have questions, please feel free to contact me.

Sincerely,



Richard J. Nichols  
Regional Manager

Enclosure

Copy to:

Lake County Planning Department  
- Klamath Falls, DEQ  
Maggie Conley, Intergovernmental Coord.,  
Solid Waste Division,  
Air Quality Division,  
Water Quality Division,  
DEQ Portland

STATE OF OREGON

DEPARTMENT OF ENVIRONMENTAL QUALITY

INTEROFFICE MEMO

TO: Dick Nichols

DATE: May 24, 1983

FROM: Wendy L. Sims *WLS*

State of Oregon  
DEPARTMENT OF ENVIRONMENTAL QUALITY

**R E C E I V E D**  
MAY 26 1983

SUBJECT: OTH-B Radar System Draft EIS

BEAD DISTRICT OFFICE

Transmitter Study Area

As proposed in the DEIS, the proposed OTH-B Radar System transmitting site would not be a major source of any criteria pollutants. Several areas should, however, be clarified in the final EIS.

The DEIS estimates annual operating time for the generator at 1 hour/week for inspection & maintenance, or 52 hours/year. Based on the uncontrolled emission factors given in AP-42, emissions from the backup generator would be as follows:

Pollutant	Emission Factor *	1-15 MW generator	4-5 MW generators (worst case)	Significant Emission Rate
NO <sub>x</sub>	15.0 g/KWh	12.9 tons/yr	17.2 tons/yr	40 tons/yr
CO	3.3 g/KWh	3.4 tons/yr	4.5 tons/yr	100 tons/yr
HC	0.08 g/KWh	0.1 tons/yr	0.1 tons/yr	(40 tons/yr)
SO <sub>x</sub>	4.3 g/KWh	3.7 tons/yr	4.9 tons/yr	40 tons/yr
VOC	0.04 CH <sub>4</sub> /0.04 nonCH <sub>4</sub>	Negligible	Negligible	40 tons/yr
TSP	1.34 g/KWh	1.2 tons/yr	1.5 tons/yr	25 tons/yr

\* Emission factors for NO<sub>x</sub>, CO, HC, SO<sub>x</sub>, & VOC are as given for Stationary Large Bore Diesel and Dual Fuel Engines. Since no emission factor for particulates is given, the emission factor for smaller (34-447 kw) diesels was used. Actual TSP emissions would presumably be lower.

The DEIS states on page 4-75 that "the Air Force will install the best practicable emission control equipment on the backup power plant." NO<sub>x</sub> emissions can be controlled by simple, practicable changes in engine operating parameters. Retarding fuel injection by 8° gives a 40% reduction in NO<sub>x</sub>. Using retarded fuel injection timing, NO<sub>x</sub> emissions during inspection and maintenance would be 7.7-10.3 tons/year depending on the generator option chosen. In order to qualify as a Major Source, the generator would have to be operated an additional 150 (4 @ 5 MW) to 217 (1 @ 15 MW) hours per year. The FEIS should clarify the emission control equipment or techniques to be used and estimate the total usage, emergency and scheduled, of the generator on an annual basis.

Particulate emissions estimates, which are not tabulated in the dEIS, should be included in the FEIS.

Page 4-74 states that the "Department of Environmental Quality requires notice prior to construction of any emission source." More specifically, under OAR 340-20-025(1)(b), "fuel burning equipment rated at 400,000 Btu per hour or greater" is subject to the Notice of Construction regulations. Notice of Approval from DEQ will be required under OAR 340-20-030 prior to construction. The Notice of Construction mentioned in the DEIS is not sufficient. In addition, an Air Contaminant Discharge Permit will be required for the proposed source under OAR 340-20-155(1). Table I, Category 60, requires a Permit for any fuel burning equipment greater than  $30 \times 10^6$  BTU/hr (heat input basis).

The Wilderness Study Areas in the proximity of the proposed transmitter sites are protected by the Interim Management Policy, Section 603 of the Federal Lands Policy and Management Act. This requires the preservation of the wilderness values of any WSA until a final determination of its status is made. However, these areas are not classified as Class I areas, as stated on page 4-75, but as Class II areas. Air quality modeling is not required for a non-major source impacting Class II areas.

#### Support Base and Operations Center

The installation of a 1.2 MW generator at Kingsley Field, as mentioned on page 4-129, would require Notice of Construction to DEQ and Notice of Approval by DEQ (OAR 340-20-030). This should be mentioned in the FEIS.

Table 4-11 shows the combined emissions from the generator and vehicular activity at the operations center. These should be listed separately.

The generator will be subject to the conditions of the Air Contaminant Discharge Permit for the site. The Permit will require revision if the generator is installed.

WLS:a  
AA3378  
cc: Maggie Conley

August 25, 1980

Lake County Commissioners  
P.O. Box 903  
Lakeview, OR 97630

SW - Lake County  
RCRA "Open Dump Inventory"  
Preliminary Notification  
Notice of Violation

Gentlemen:

The Department is concluding its first fiscal year of the Open Dump Inventory as required by the federal Resource Conservation and Recovery Act of 1976 (RCRA). Our initial efforts have been directed at evaluating all the municipal and demolition waste disposal facilities against the RCRA criteria. Such evaluations have been and will be based on both past experiences (file information) and current operating conditions at a particular site.

The Adel, Christmas Valley, Plush, Silver Lake, Summer Lake and Fort Rock solid waste disposal facilities have been evaluated and found to be in violation of the following RCRA criteria:

257.3-7 Air, and 257.3-8 Safety. These criteria are violated because of the continued practice of open burning of garbage at the sites.

Upon completion of the first year's inventory activities on September 15, 1980, the names of all those facilities in violation of the RCRA Criteria will be submitted to the federal Environmental Protection Agency (EPA). A list of those noncomplying facilities will be published in the January '81 "Federal Register". You should know that federal law provides for "citizen suits" for violations of the RCRA Criteria (Section 7002 of RCRA). In addition, any site in violation of State regulations may be subject to civil penalties (fines) or other legal action.

If you have any questions or would like to comment on this notification, please contact either the branch office at Klamath Falls or the Solid Waste Division at 229-5060.

Sincerely,

Donald L. Stambhall  
Regional Sanitarian

DLB:dmc

cc: S.A. Schmidt, Solid Waste Division,  
DEQ Portland  
Klamath Falls Branch

285

6

Resources Building  
1416 Ninth Street  
95814

(916) 445-5656

Department of Conservation  
Department of Fish and Game  
Department of Forestry  
Department of Boating and Waterways  
Department of Parks and Recreation  
Department of Water Resources

GEORGE DEUKMEJIAN  
GOVERNOR OF  
CALIFORNIA



THE RESOURCES AGENCY OF CALIFORNIA  
SACRAMENTO, CALIFORNIA

Air Resources Board  
California Coastal Commission  
California Conservation Corps  
Colorado River Board  
Energy Resources Conservation  
and Development Commission  
Regional Water Quality  
Control Boards  
San Francisco Bay Conservation  
and Development Commission  
Solid Waste Management Board  
State Coastal Conservancy  
State Lands Commission  
State Reclamation Board  
State Water Resources Control  
Board

Mr. Ro Raffa  
ESD/SCU-4  
Hanscom AFB  
MA 01731

June 6, 1983

Dear Mr. Raffa:

The State has reviewed the draft environmental statement, Continental United States Over-the-Horizon Backscatter Radar System, submitted through the Office of Planning and Research in accordance with OMB Circular A-95.

This review was coordinated with the State Water Resources Control Board and the Departments of Fish and Game, Parks and Recreation, Water Resources, Health Services, and Transportation.

In the attached memorandum from the Department of Fish and Game (DFG), the Department recommends minor modifications, initiation of three studies, and inclusion of additional measures to reduce adverse impacts of the proposed project. DFG believes that these changes would be necessary to protect fish and wildlife resources.

Questions regarding DFG's comments should be directed to A.E. Naylor, Regional Manager, 601 Locust Street, Redding, CA 96001.

We greatly appreciate having been given an opportunity to review this document and to comment upon its contents.

Sincerely,

A handwritten signature in cursive script, appearing to read "Gordon F. Snow".

GORDON F. SNOW, Ph.D.

Assistant Secretary for Resources

cc: Office of Planning and Research  
1400 Tenth Street  
Sacramento, CA 95814

(SCH 83050902)

Attachment

**Memorandum**

To : Honorable Gordon K. Van Vleck  
Secretary for Resources  
1416 Ninth Street  
Sacramento, CA 95814

Date: 6-3-83

Attn: Projects Coordinator

From : Department of Fish and Game

Subject: SCH 83050902 - Draft EIS - Continental United States Over-the-Horizon  
Backscatter Radar System, Modoc County

The Over-the-Horizon Backscatter (OTH-B) Radar System for the western United States is to detect, track, and provide early warning of aircraft at greater distances than is possible with line-of-site radars. Lone Pine Butte and Rim Rock Lake areas in Modoc County are being considered for radar receiver sites; McClellan Air Force Base (Sacramento County), is being considered for the operations center along with bases in Oregon, Washington and Idaho. The two transmitter sites being considered are in Oregon.

We have reviewed the DEIS and believe with some minor modifications, initiation of three studies and inclusion of some additional measures to reduce adverse impacts, the statement would be acceptable to the Department of Fish and Game.

We believe there are three areas that need to be explored before an assessment of the project impacts can be properly evaluated.

1. Because sage grouse is a game species of special concern on the Modoc Plateau, and the population is declining, all suitable habitat available should be retained in order to maintain the population. Therefore, we recommend that a sage grouse study be completed on the two proposed sites to evaluate potential project impacts and suitable measures that will reduce impacts to an acceptable level.
2. We recommend that a winter study be conducted on both sites to evaluate bald eagle use of the area during their winter concentration periods.

Bald eagles are an endangered species and they are known to fly over the project areas; therefore, we believe some flight line evaluations are in order to prevent accidental antenna flight strikes that could cause additional bald eagle mortality. This information could be used in developing the appropriate antenna array.

77



3. A juniper study should be conducted to evaluate its importance as thermal cover for mule deer on the two sites. This information could better define measures that would reduce project impacts upon the migratory interstate deer herd. 77

Our specific comments are as follows:

4.3.2.1.2 Animals - Rim Rock Lake

The following mitigation measures would be taken to the extent feasible (p. 4-98 and 99).

- (1) We recommend the statement be expanded to include a condition: That the Air Force will coordinate the placement of the antenna array with the Department of Fish and Game and the Modoc National Forest to reduce the impacts upon the affected wildlife resources.
- (2) We believe that junipers are a critical component of thermal cover for mule deer on winter ranges. Therefore, this mitigation measure statement should be changed to reflect the results of the juniper study which should dictate the management of juniper on the project lands and the lands set aside for wildlife compensation. 77
- (3) We do not believe that the installation of exclusion fences are a mitigation feature; therefore, this item should be eliminated as mitigation and only considered a project impact. 78
- (5) This is the critical mitigation measure which we believe warrants Department coordination.
- (6) This mitigation measure should be expanded to include the areas that are required to compensate for the project-caused wildlife losses.

The surrounding lands will have to be manipulated to increase the carrying capacity above that which it currently supports. The amount of land required for compensation of the lost values will be dependent upon the ability of the soils to support vegetation that will provide more food and cover for the affected wildlife. We are not able to double the carrying capacity on already productive sites. Therefore, we would be looking at an area of at least two to four times the size of the project lands of 1200 acres for compensation. 77

- (7) We support the restriction of vehicles to designated roads. However, we believe that no dogs should be allowed for construction personnel in the study area. In addition, dogs belonging to operational personnel must be kept inside the fenced enclosed areas to reduce disturbance to wildlife.

- (9) We support designing the electric distribution lines to prevent raptor electrocution. However, a better solution would be to construct them underground.

77

In addition to the nine items mentioned in this section we recommend the inclusion of the following measures to reduce the impacts or to enhance the project lands for wildlife:

- 1—Develop six big game guzzlers on and adjacent to the project study area. Because of hoof-rot problems in the past we recommend guzzlers or tanks rather than sumps or stock ponds.
- 2—The electrical transmission lines should be located along the access road.
- 3—A site reclamation plan needs to be developed and included in the DEIS for when the OTH-B is decommissioned.
- 4—In order to reduce project-related wildlife harassment and poaching, 100 hours of helicopter time should be provided the Department of Fish and Game for each year the radar facility is operational.
- 5—Two snowmobiles should be made available for Department law enforcement work during the winter months to reduce wildlife associated impacts.

77

4.4.2.1.2 Animals - Lone Pine Butte

The following mitigation measures should be taken to the extent feasible (p. 4-112 and 113).

For items (1) through (9) please refer to previous comments.

We also believe our five additional items recommended under the Rim Rock Lake section applies to the Lone Pine Butte section as well.

We discussed all of these comments with Mr. Phil Leitner of the Stanford Research Institute on Friday, May 27, 1983, in Alturas, California.

If you have any questions regarding our comments please contact Mr. A. E. Naylor, Regional Manager, Region 1, 601 Locust Street, Redding, CA 96001. His telephone number is (916) 246-6511.

*EC Freeland*  
Director

# BEND Words & Graphics CENTER.

June 6, 1983

My Nickel's Worth  
Bend Bulletin  
1526 N.W. Hill  
Bend, Or. 97701

Dear Editor:

Although the possibility of Central Oregon escaping a nuclear holocaust due to our isolated location remains remote, it is nonetheless disturbing to learn that after June 10 we may be fated to become at least a second priority target of the Kremlin.

11

This scenario will unfold if the Air Force's over-the-horizon scanner is installed in Christmas Valley. The scanner is designed to detect enemy aircraft with a range of 500-1800 nautical miles.

William Boyer of Sisters seems to be waging a one man crusade against this development. Christmas Valleyites are all for it despite the fact that the jobs it will create for them will be temporary. And not even the Air Force has addressed the nuclear target issue in its Environmental Impact Statement.

Many of us have sacrificed much to locate in an area which, in some respects, may be one of the safest in the country. We can't escape a global conflict but I, for one, would rather not be annihilated in a blinding flash.

Please write the Air Force Electronics Systems Division (ESD/SCU-4), Hanscom Air Force Base, Mass. 01731 and your political influentials.

Sincerely

Home/business: 388-0079

Bill Seavey

290

Occupation: resume writer

115 N.W. Oregon, Suite 30 (Box 864, Bend 97709).

Phone: (503) 388-0079

John Pascoe  
25811 27 Av. NE  
Arlington WA 98223

6-7 83

ESD/SCU-4  
Hanscom AFB:

I am taking the opportunity to comment on the Draft Environmental Impact Statement for the west coast OTH-B radar system. My comments will be confined to possible interference from the OTH-B to the HF Broadcast Bands, and the no action or postponement of action alternative.

The N.T.I.A. has authorized the OTH-B to operate in the H.F. Broadcast Bands on a "noninterference" basis. I interpret "noninterference" as "no interference", yet for the purposes of the OTH-B, the EIS seems to interpret this as "no apparent interference". I base this assumption on the EIS's conclusions: "...interference to an unknown number of broadcast listeners at unknown locations throughout the world could occur...which is unpredictable...." This conclusion was made given the OTH-B will be using the Broadcast Bands on a second priority basis and using a spectrum monitor to prevent operation on occupied frequencies at the transmitter site. To put it more succinctly, the OTH-B will try to avoid interfering with broadcast stations, but it will interfere X% of the time. This variable, I will call X, really is what the EIS failed to determine, for I believe if it did, the N.T.I.A. would not have authorized the OTH-B to use the Broadcast Bands. 40

Obviously I believe the radars operation in the HF Broadcast Bands, no matter how carefully planned, will result in much more interference than N.T.I.A. or the Air Force anticipate. The major factor in this belief is the current state of the bands. It is virtually impossible to find a clear channel in the broadcast bands below 15 MHz. I am referring to the 6, 9, and 11 MHz bands. In addition, these bands will become increasingly crowded as the sunspot number continues to drop. These bands have become so congested that broadcasters around the world have opted to operate outside them, in the adjacent fixed bands. It is true that the 1979 WARC conference voted to expand the 9, 11, 15, 17, and 21 MHz bands, but this only legalized the existing situation. They also created a new 13 MHz broadcast band, but it will not be available until the 1990s. In 1981, the daily broadcasting hours in each band break down as follows: 6MHz--7000 hours, 9MHz--5300 hours, 11MHz--4000 hours, 15MHz--3000 hours, 17MHz--1300 hours, 21MHz--800 hours, 26MHz--200 hours ("HF Broadcast Reception Conditions Expected During 1983", George Jacobs, 1983 World Radio TV Handbook.) Given these figures, and my own listening experience, I assert that the 17, 21, and 26 MHz bands will be the only ones that the OTH-B could possibly operate in on a "noninterference basis" with success. These figures do not include intentional interference (jamming) or the Soviet's own OTH-B radar, which operates indiscriminately throughout the HF spectrum.

In summary, I am recommending that the OTH-B be restricted from using the 15, 11, 9, and 6 MHz Broadcast Bands. I am certain that when the system is operational, it will find these bands far too overcrowded for its use in any case.

Finally, I am offering that the OTH-B system not be constructed in the first place. The EIS asserts that no action would result in "foregoing...national security and defense benefits..." I believe there is no real threat to the U.S. that the OTH-B would lessen or defend against. As evidence, I cite a G.A.O. spokesman, Donald Day: "The threat of a bomber attack (according to defense department information) doesn't exist". The G.A.O. also has stated that existing radars may be adequate. I would add to this that the vagaries of ionospheric propagation would make satellite systems preferable. It seems to me that the acquisition of the OTH-B at this point is merely because the U.S.S.R. has such a system. I perceive the OTH-B as another boondoggle of the arms race, and wish its early demise. John Pascoe 29



# THE AMERICAN RADIO RELAY LEAGUE, INC.

HEADQUARTERS SOCIETY OF THE INTERNATIONAL AMATEUR RADIO UNION

ADMINISTRATIVE HEADQUARTERS NEWINGTON, CONNECTICUT, U S A 06111

VICTOR C. CLARK  
W4KFC, PRESIDENT  
CARL L. SMITH  
W0BWI, FIRST VICE PRES  
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W4RA, VICE PRES  
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K1LLJ, TREASURER  
DAVID SUMNER  
K1ZZ, SEC & GEN MGR  
203-666-1541  
**QST**  
OFFICIAL JOURNAL

June 9, 1983

Air Force Electronic Systems Division  
ESD/SCU-4  
Hanscom AFB, MA 01731

Dear Sir or Madam:

The American Radio Relay League (hereinafter referred to as ARRL or the League), principal spokesman for the more than 400,000 radio amateurs in the U.S. licensed by the Federal Communications Commission, appreciates the opportunity to comment on the draft environmental impact statement concerning the West Coast over-the-horizon backscatter radar system to be located in parts of Oregon, California, Washington, and Idaho.

The Department of the Air Force recognizes the impact that its OTH-B radar potentially could have on the Amateur Radio Service. Section C.3.1.2.1 of the draft environmental impact statement reads in part:

Although the Air Force does not intend to operate the OTH-B radar in the amateur bands, all bands listed in Table C-3<sup>1</sup> are adjacent to bands in which the radar can be expected to operate. Thus, enough of the radar's energy could possibly fall into an amateur band to produce interference to the users there (see Section C.2.2.1). Because the energy could be emitted by the radar's sidelobes or backlobes, as well as the main beam, and because it could propagate by sky wave, specifically predicting when or where any interference would occur is impossible.

A 5-page article describing the ERS and the interference effects that might occur was published in a leading amateur radio magazine<sup>2</sup> in 1980, about the time the Air Force began testing the ERS (Villard, 1980). The amateurs were informed that the radar, if heard on an AM receiver, would sound like a hum "at any one of several modulation

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<sup>1</sup>Table C-3 is a listing of the four Amateur Radio bands near the radar's frequencies: 40-m band, 7.0-7.3 MHz; 20-m band, 14.0-14.35 MHz; 15-m band, 21.0-21.45 MHz; 10-m band, 28.0-29.7 MHz.

<sup>2</sup>The League's own journal QST, April 1980, pp. 39-43.

frequencies from 20 Hz to 60 Hz," which are, of course, the WRFs. The article not only urged the amateurs to submit reports of any interference to the OTH Radar Office at Hanscom AFB, but it also stated that the "Air Force will welcome amateur reports of its signals and their apparent level, whether there is interference or not."

The fact that no reports of ERS-produced interference in the amateur bands were ever received at the OTH Radar Office (Raffa, 1982; Abel, 1981) indicates that this type of radar can operate without unduly affecting users of the adjacent channels.

While appreciating the national security considerations involved, radio amateurs have good cause to be concerned at the appearance of an OTH-B radar system operating on the high frequency bands (3.5 - 29.7 MHz). The Soviet Union, since 1976, has been operating what is ostensibly an over-the-horizon radar on the high frequency bands. So raucous and disruptive is its signal that it has been dubbed the "Woodpecker." Other radio services operating in accordance with national and international regulations have also complained of harmful interference caused by the "Woodpecker." Although the intensity and duration of the interference varies with the frequencies used and the geographical location of the various legitimate spectrum users, "Woodpecker" interference continues to be a major disruptive and harmful threat to the public service capabilities of the Amateur Radio Service.

Contrary to the "bad neighbor" policy of the Soviet Union, the U.S. Air Force has to date followed a "good neighbor" policy with regard to its experimental radar system (ERS) located in Maine. In the QST article mentioned above the Air Force was open and direct about the ERS, and amateurs were encouraged to notify the Air Force of interference problems. It is evident that, at least up to the present, Amateur Radio and the ERS have coexisted peacefully.

While confident that the present peaceful coexistence will continue as the various U.S. OTH-B radars become operative, the ARRL and amateurs in general will maintain a continual vigilance for all types of non-amateur intrusions into the amateur bands. Experience has shown this to be the only prudent course to take.

Finally, we wish to take this opportunity to thank the Air Force for its overall support of the Amateur Radio Service. This support is based upon recognition that radio amateurs represent a pool of expertise which can be tapped in time of national emergency. While no one factor can be singled out as most important, the support of the Air Force (and Army and Navy) played no small

role in the allocation internationally of three new high frequency bands<sup>3</sup> to the Amateur Radio Service at the 1979 World Administrative Radio Conference in Geneva, Switzerland. Amateur radio operators are appreciative of the good will the military has extended to the Amateur Radio Service through the years.

Respectfully submitted,

*E. Laird Campbell*

E. Laird Campbell  
Acting General Manager

ELC:dst

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<sup>3</sup>10.10-10.15 MHz; 18.068-18.168 MHz; 24.89-24.99 MHz.

U.S. ENVIRONMENTAL PROTECTION AGENCY

REGION X

1200 SIXTH AVENUE  
SEATTLE, WASHINGTON 98101



REPLY TO  
ATTN: OP:

M/S 443

JUN 9 1983

Air Force Electronic Systems Div.  
(ESD/SCU-4)  
Hanscom AFB, MA 01731

Dear Sir:

The Environmental Protection Agency (EPA) has completed reviewing the Draft Environmental Impact Statement (EIS) for the construction and operation of the West Coast Over-The-Horizon Backscatter Radar System. The proposed location alternatives for various segments of the project fall under the jurisdiction of two EPA Regional Offices. We have, however, prepared a joint response and rating of the EIS. Our detailed comments follow:

Radiation

1. We commend the Department of the Air Force for the extensive discussion and literature review provided regarding our present knowledge of the biological effects of non-ionizing radiation.
2. Of the radar system facilities, the concerns regarding environmental exposures to non-ionizing or radiofrequency radiation would only be associated with the planned transmitting site. The transmitting site has been planned so that calculated exposures at the exclusion area fence will be less than exposures that would pose any known biological hazard. The calculated exposure at the fence will be less than 0.1 milliwatts per square centimeter ( $\text{mW}/\text{cm}^2$ ). This may be compared to the present American National Standards Institute (ANSI) occupational standard of  $1 \text{ mW}/\text{cm}^2$ . In addition, the calculated exposures would not exceed the guidance being considered by EPA for a generally applicable environmental standard for the stated operating frequencies of 5-28 MHz.

We concur with the report's conclusion that there is no evidence that chronic exposure of humans to these radiofrequency radiation levels outside the exclusion fence surrounding the transmitter site is likely to be harmful.



3. The electrical fields measured in volts/meter (V/m) in the vicinity are large enough to cause possible induced current problems with electronic circuits or electroexplosive devices. This is recognized and discussed in the DEIS. Although there are no mining activities at present in the area, we suggest that some mechanism should be developed with the BLM and USFS so that persons applying for land use permits in the area would be informed of the possible hazards.

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#### Air Quality

1. On p. 3-126 the DEIS states, "Air quality in the Sacramento area is in attainment of federal standards." The FEIS should state instead that the Sacramento area (including McClellan AFB) has been designated as a Nonattainment Area for carbon monoxide, ozone, and total suspended particulates.

52

#### Water Quality

1. The FEIS should include a contingency plan to prevent and mitigate fuel spill impacts at all sites, including the operations center alternatives. The DEIS acknowledges, for instance, that there are shallow aquifers beneath McChord AFB which could be affected by construction activities or by leaks of contaminants from construction equipment if precautions are not taken. The FEIS should specify the precautions that would be taken.
2. Methods used to treat and dispose of the domestic wastewater generated at the selected receiver area (Rimrod Lake or Lone Pine Butte) should be evaluated in the FEIS. The unsuitability of soils for septic tanks is recognized; alternatives must be approvable by state and local health and water quality agencies.
3. The FEIS should describe the construction activities and their impact on water quality at all sites. The potential for erosion, siltation and ground water contamination due to construction and/or utilization of access roads, storage facilities and concrete foundations should be discussed. Plans to prevent and mitigate any adverse surface or groundwater impacts should be evaluated and commitments for implementation included.

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#### General

1. Maps showing specific locations for the support base and operation center facilities at the various locations would be helpful to readers of the EIS.

Based on our review of the document, EPA is rating this EIS LO-2 (LO-Lack of Objections; 2-Insufficient Information). If you wish to discuss any of our comments, please call Richard Thiel, Chief, Environmental Evaluation Branch at (FTS) 399-1728.

Thank you for the opportunity to review this EIS.

Sincerely,



L. E. Coate  
Acting Regional Administrator

cc: David Tomsovic, EPA, Region 9



June 10, 1983

RE: DRAFT EIS CONTINENTAL OTHB RADAR SYSTEM

Please find enclosed two charts detailing present residence of McChord AFB personnel. This indicates an additional personnel, ie. OTHB site, would disperse similarly.

41

So, more than 4 school districts would receive children from employees, and the impact would not be as great as envisioned in the EIS on any of them.

Sincerely,

Gary D. Brackett, Manager  
Business/Industry Council

ESD/SCU - 4  
Mr. Ro Raffa  
Hanscom AFB, MA 01731

GDB/vr

enclosure

pc: Sid Everett

*P.S.: The community would  
welcome this facility and the  
personnel and dependents  
assigned to it. GDB.*





## *Department of Fish and Wildlife*

506 S.W. MILL STREET, P.O. BOX 3503, PORTLAND, OREGON 97208

June 10, 1983

Mr. Ro Raffa  
ESD/SCU-4  
Hanscom AFB, MA 01731

Dear Mr. Raffa:

The Oregon Department of Fish and Wildlife has reviewed the Draft Environmental Statement for the proposed Continental U.S. Over-the-Horizon Backscatter Radar System. Comments regarding the siting of the facility in Oregon are as follows:

### General Comments

1. Buffalo Flat site would have the least impacts to wildlife. Our observations indicate more deer and antelope occupy the Mean Rock site. Selection of either site would be acceptable subject to additional recommendations referred to below. 70
2. Actual installation site be located within the southeast portion of whichever study area is selected. The reason being less impact is imposed on wildlife if the installation site is located closer to other man-made activities and further away from wildlife sensitive areas. Access would also be closer to existing roads. 71

### Specific Comments

#### B. Comments relating to specific portions of a statement:

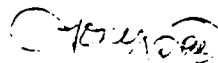
1. Page 5-7, Biophysical Effects. The statement "habitat is of little value to the animal species that might be excluded" is in error. Habitat is always important to wildlife species, especially as it becomes scarcer and in those areas of limited plant diversity and productivity. Paragraph 2, page 4-71 implies the same. 72
2. Page 5-14, Transmitter Site. Environmental impacts column speaks of mitigation measures that will be addressed later. Several practices could be suggested for loss of 2,800 acres of habitat. We suggest coordination with ODFW field staff prior to any mitigation determination. 73

Mr. Ro Raffa  
June 10, 1983  
Page 2.

3. Page 3-5, Animals. Mule deer are present in the study area. Past observations have shown deer and antelope sign during summer months. The statement relating to winter range is true with primary area occurring several miles to the west. Remaining statements are quite well written and appear to be correct. 74
4. Page 3-36, Animals. Entire section discussing probable impacts is the basis for ODFW selection of Buffalo Flat area for transmitter site. Buffalo, well to the south of study area, is the location of a sage grouse lek. Road conditions usually preclude any problems, however, if an improved road to the Buffalo Flat is developed some consideration to this lek should be made. Details should be coordinated with ODFW field staff. 75
5. Page 4-71, Animals. As stated, electrical distribution lines must be properly designed to protect raptors.
6. Page 4-71 and 4-80. Last paragraph on 4-71 states mitigated losses of wildlife habitat could be the rehabilitation of disturbed areas. This is not mitigation, it is replacing habitat being disturbed only. Mitigation is improving other areas to replace lost habitat. Therefore we request that:
  - a. A minimum of two nongame/upland game cisterns be placed within the fenced area of whichever site is chosen and two big game cisterns be placed outside fenced area as mitigation of lost area to big game species. These sites are to be selected by ODFW and BLM biologists. 76
  - b. A minimum of 30-40 acres of wildlife plantings (crested wheatgrass, etc.) be funded by Air Force adjacent or in close proximity to the selected transmitter site. That area to be selected by biologists at a later date.

We appreciate the opportunity to comment on this project and look forward to the treatment of our above stated concerns in the Final Environmental Statement.

Sincerely,



Anthony J. Faast  
Staff Biologist  
Environmental Management Section

SW  
cc: Norm Behrens  
Ralph Opp  
Steve Denney

JOHN SPELLMAN  
Governor



DONALD W. MOOS  
Director

STATE OF WASHINGTON  
DEPARTMENT OF ECOLOGY

Mail Stop PV-11 • Olympia, Washington 98504 • (206) 459-6000

June 10, 1983

Mr. Ro Raffa  
Air Force Electronic Systems Division  
(EDS/SCU - 4)  
Hanscom Air Force Base, MA 01731

Dear Mr. Raffa:

Thank you for the opportunity to comment on the draft environmental impact statement for the "Continental United States Over - The - Horizon Backscatter Radar System". The Department of Ecology has no specific comments on this proposal. We did, however, coordinate the review of this EIS with the other state agencies and received the attached comments from the Department of Game.

If you have any questions, please contact Ms. Betsy Wolin, Department of Game, at (206) 753-5700, or Mr. Greg Sorlie at (206) 459-6237, Environmental Review Section.

Sincerely,

A handwritten signature in cursive script, appearing to read "Dennis Lundblad".

Dennis Lundblad  
Operations Management Division

DL:pp

Attachment

cc: Betsy Wolin, Game  
Greg Sorlie, Ecology



DEPARTMENT OF THE AIR FORCE  
HEADQUARTERS 2852D AIR BASE GROUP (AFLC)  
MCLELLAN AIR FORCE BASE, CALIFORNIA 95652

REPLY TO  
ATTN OF:

DEE

15 JUN 1983

SUBJECT:

Draft Environmental Impact Statement (DEIS) Comments, Over the Horizon-  
Backscatter Radar System

TO:

Air Force Electronic Systems Division (ESD/SCU-4)  
Hanscom AFB, MA

1. Our comments on this subject are minor or limited to factual corrections except for Section 4.8.3.7 of the DEIS. We wish to remain on your distribution list for EIS modifications and revisions and for the record of decision.

2. Section 3.8.1.3, page 3-126

a. The Sacramento area is not in attainment of federal air quality standards. We exceed the ambient air quality standards for ozone, carbon monoxide and total suspended particulates. Reference the Sacramento Air Quality Plan, August 1982, by the Sacramento Area Council of Governments.

b. Our calculations for 1979 air emissions from McClellan stationary and mobile sources are as follows, including percentages of air basin emissions:

(1) Particulates	25 tons/yr	0.8%
(2) Carbon Monoxide	620 tons/yr	0.3%
(3) Sulfur Oxides	40 tons/yr	1.5%
(4) Nitrous Oxides	180 tons/yr	0.7%
(5) Hydrocarbons	750 tons/yr	2.1%

c. The closest air quality monitoring station is operated by the Sacramento County Air Pollution Control District. They monitor CO, NO, NO<sub>2</sub>, NO<sub>x</sub>, ozone, SO<sub>2</sub>, TSP and size selective - high vol TSP.

3. Section 3.8.1.4.1, page 3-127

Current average water usage is 3 to 3½ million gallons per day.

52

87

4. Section 3.8.1.4.2, page 3-129

We will need to take one additional water sample per month if the operations center is constructed here.

88

5. Section 3.8.2, page 3-130

McClellan AFB is northeast of the City of Sacramento.

89

6. Section 3.8.2.7, page 3-138

The candidate operations center site is on the northeast side of the base near the perimeter fenceline.

90

7. Section 4.8.2.2.2, page 4-144

There are also off-base noise impacts. There are five homes and a 100-unit apartment complex within 400 feet of the proposed construction site.

91

8. Section 4.8.3.1 and 4.8.3.2, pages 4-146 and 4-147

In the first section, all construction workers are assumed to be available in the region of influence. However, in the next section, there is a statement that workers could be hired from outside the region. Isn't this contradictory?

92

9. Section 4.8.3.4, page 4-148

The third sentence in the third paragraph cannot be substantiated nor is there a base for cost comparison. We suggest deleting this sentence.

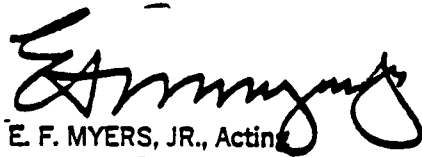
93

10. Section 4.8.3.7, page 4-149

There is one potential on-base land use conflict. The candidate operations center site would be within a vacant area north of Bldg. 1412, our child care center, and Bldg. 1430, our temporary living facility. The Air Force Regional Civil Engineer - Western Region, the Base Civil Engineer, and the Morale, Welfare and Recreation Division are jointly preparing a recreation development plan for this area to include an extended picnic area and family camp area.

94

FOR THE COMMANDER

  
E. F. MYERS, JR., Acting  
Base Civil Engineer





DEPARTMENT OF THE ARMY  
SEATTLE DISTRICT, CORPS OF ENGINEERS  
P.O. BOX C-3755  
SEATTLE, WASHINGTON 98124

16 JUN 1983

NPSN-PL-ER

SUBJECT: Comments on Draft Environmental Impact Statement (EIS),  
West Coast Over the Horizon-Backscatter (OTH-B) Radar System

Mr. Ro Raffa  
Air Force Electronic Systems Division (ESD/SCU-4)  
Hanscom AFB, Maine 01731

1. We have reviewed the draft environmental impact statement (EIS) on the proposed West Coast Over the Horizon-Backscatter (OTH-B) Radar System, candidate sites in Oregon, California, Idaho and Washington, with respect to the U.S. Army Corps of Engineers' areas of responsibility for flood control, navigation, and regulatory functions. We have no comments.
2. A general comment, which you may wish to consider, concerns the consistency in breadth and depth of environmental data presented. Biological and cultural resource information is seemingly provided in accordance with its ready availability rather than with potential significance at the various alternative sites. The resultant inconsistency is exemplified by the disparate treatment of resources at Lone Pine Butte (pages 3-78 through 3-92) and McChord Air Force Base (pages 3-108 through 3-126). As a general rule, we suggest resource information in the draft EIS uniformly reflect reconnaissance level field work for both biological and cultural amenities.
3. Thank you for the opportunity to review this statement. If you have any questions, please contact Dr. Steven F. Dice, telephone (206) 764-3624, of my staff.

FOR THE COMMANDER

GEORGE W. PLOUDRE, P.E.  
Asst. Chief, Engineering Division

CF:  
Dr. S. Everett  
SRI International  
333 Ravenswood Avenue  
Menlo Park, California 94025 304



United States  
Department of  
Agriculture

Forest  
Service

Washington  
Office

12th & Independence SW  
P.O. Box 2417  
Washington, DC 20013

Reply to: 1950

Date: JUN 20 1983

sent USAF 6/24  
with 6/28

Department of the Air Force  
ATTN: R. Raffa  
ESD/SCU-4  
Hascom AFB, MA 01731

Dear Mr. Raffa:

In addition to the March 29 response sent to you by the Forest Supervisor of the Modoc National Forest, we have the following comments:

1. The public concerns listed on pages S-1 and S-2 are not fully addressed in the following chapters which depict the Proposed Action and Alternatives, and the Environmental Consequences.
2. There was no discussion regarding power source for the receiver and transmitter sites. Are there power transmission facilities proposed? If so, what environmental effects are associated? 82
3. There was little or no discussion of fire hazards caused by the construction and operation of the facilities, even though this was acknowledged to be a public issue. 83
4. There was little or no discussion of the proposal effects on migratory waterfowl. The sites for both receiving and transmitting facilities are in the major flyway for waterfowl. Conversely, could the waterfowl flights affect the efficiency of radar operations? 84
5. We recommend that text be developed on possible safety mitigation measures for use of electro-explosive devices in the transmitter vicinity. Explosives and electric detonators are commonly used in the affected environment including operations for control of wild-land fires. Uncontrolled explosions possibly as far away as 25 miles constitute a tremendous safety hazard. 12
6. There is no discussion on the changes of use in the public forests as a result of the proposed action, although this is acknowledged as a public issue on page S-2. 85

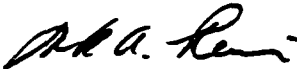


7. There should be some discussion about the effects of the proposal on Forest management activities which require aircraft use. Included are aerial fire detection, fire suppression, aerial pesticide applications, etc. Currently, Kingsley Field is used as an aerial retardant base for fire fighting support.

86

We appreciate the opportunity to review and comment on the draft environmental impact statement, and will be happy to answer any questions or provide further clarification, if necessary.

Sincerely,



*fa* J. LAMAR BEASLEY  
Deputy Chief



UNITED STATES DEPARTMENT OF AGRICULTURE  
FOREST SERVICE  
Modoc National Forest  
P.O. Box 611  
Alturas, California 96101

2740

JUN 20 1983

Department of Air Force  
ATTN: Bo Raffa  
ESD/SCU  
Hanscom AFS Ma, 01731

Dear Ro:

On May 27 members of my staff met with Phil Leitner and Barbara Mallick of St. Mary's college, at the request of Tracy Walklet of Stanford Research Institute. The purpose of this meeting was to follow-up on our previous comments on the DEIS for the proposed OTHB radar installation. Our response had urged a more detailed discussion of various resource impacts and appropriate mitigation measures.

Phil agreed to pass on our comments on appropriate mitigation measures for SRI's use in preparing the final EIS. We are enclosing a summary of the discussion on resource impacts and mitigation measures and are furnishing SRI a copy of this letter and summary.

The principal conclusion reached early in our discussion was that final details of specific mitigation measures to be applied is premature. Since the actual site location and configuration has not been determined, resource impacts are not quantifiable.

We believe that some general principles can be covered, and that the decision notice establish an intent to commit necessary funds and responsibility to develop detailed measures to be taken in a development and construction plan. This plan would be based on actual site surveys and plans and subsequent site reviews.

The issuance of the Special Use Permit granting land use will be done after the Air Force furnishes construction site plans and the over all development plan. Specifications and standards for external facilities, fences, roads, power, water, and sanitation will need to be included.

Continuing discussions and negotiation will need to be a part of the survey and design process to spell out appropriate adjustments and mitigation measures. In dealing with other agencies, we have used a detailed project plan, which serves as a supplement to the permit, and a summary of agreement of specific issues. It also serves as permanent documentation of construction standards and as a field guide during construction. It may be amended as needed to accommodate field conditions.



In the interest of cost efficient planning, and providing our guidance, we'd appreciate as much advance notice as possible of any field visits or survey work planned on the site.

GLENN BRADLEY  
Forest Supervisor

Enclosure

Schramm, DB. 6/15/83

Glenn Bradley

*RMB*

6.20.83 *Ln*



UNITED STATES DEPARTMENT OF AGRICULTURE  
FOREST SERVICE

S.O.

JUN 20 1983

REPLY TO: 2740 Air Force - proposed OTHB -  
Radar Site

SUBJECT: Meeting with Phil Leitner  
May 27, 1983

TO: Memorandum of Record

1. Mitigation measures need to be dealt with on a continuing basis, during development of site surveys and development of construction plans.

We need to reach an understanding of the level of detail and commitment to general mitigation measures so that specific details can be worked out during process.

2. Rimrock Lake Site: The discussion of vernal wetlands in the DEIS seems to imply that negative impacts are likely if this site is selected. However, wetlands and meadows are small, and located generally in the western edge of the study area. It appears that a technically acceptable site can be located to avoid these sensitive sites with little difficulty.

Fences: We understand the exclusion fences planned to protect the antenna sites will be plastic link construction to reduce interference with signal reception. If the location of the exclusion fence requires relocation or reconstruction, or intersects with barbed wire range fences, we'll need to coordinate decisions on construction details and location of gates, cattleguards and fence details. If non-standard construction of non-metallic fence is necessary to reduce metal content adjacent to the antenna site, the Air Force will need to assume responsibility for both construction and maintenance. Our permittees are not equipped to maintain anything other than standard range fence construction.



Wildlife habitat: Road and power access construction will alter wildlife habitat, and the planned fences will remove an unknown area from big game for the life of the project. Mitigation of the lost habitat and forage should be based on improvement of an area larger than the habitat lost from fencing and access construction. Our experience indicates the limited capability to improve existing conditions requires that improvement work be planned on the basis of 2 acres of work for every acre lost.

Sage Grouse: Both alternate sites include Sage Grouse range. Both our data and California Fish and Game surveys indicate a drastic reduction in population of this game bird in the past few years. Very little is known of the ecology of the Sage Grouse and its habitat requirements. For this reason we cannot predict the effects of this project on the Sage Grouse population, nor identify necessary mitigation measures. Inventories of active Sage Grouse leks (or strutting grounds) done show only a few active grounds of those leks previously identified. About two-thirds of the currently active leks are within or closely adjacent to the two alternate receiver sites. It appears the planned project may be in an area critical to a declining species. Although not considered rare and endangered, the drastic population loss of this bird requires a study of Sage Grouse populations and habitat requirements. We believe such a study should be founded as a part of the overall mitigation.

Water Development: Improvements to increase carrying capacity for both wildlife and permitted live stock should include water developments. Both wildlife water storage "guzzlers" and piped water should be planned for in project plan development as part of mitigation measures. Maintenance costs as well as construction should be included in project cost estimates for the life of the project.

Housing for construction crews should be planned for outside National Forest lands.

Utility Lines: Should be located within existing utility and transportation corridors for as much of the route as feasible. We normally require underground installation of lower power distribution and access utilities. A proposal to construct overhead lines under 35 KU should be accompanied by a feasibility study or justification statement of why underground lines are not planned. ,

310

ROBERT SCHRAMEK  
Fire Lands and Recreation

*R. Schramek. DB, 6/15/83*

*R. Schramek*



## *Executive Department*

155 COTTAGE STREET NE., SALEM, OREGON 97310

June 21, 1983

Mr. James F. Boatright  
Deputy Assistant Secretary of the Air Force  
Air Force Electronic Systems Division (ESD/SCU-4)  
Hanscom AFB, MA 01731

Subject: West Coast Over The Horizon-Backscatter Radar System  
PNRS # OR830509-088-4

Dear Mr. Boatright:

Thank you for submitting the subject draft Environmental Impact Statement for State of Oregon review and comment.

The draft was referred to the appropriate state agencies. The Departments of Environmental Quality and Aeronautics and the State Historic Preservation Office offered the enclosed comments which should be addressed in preparation of the final Environmental Impact Statement.

We will expect to receive copies of the final statements as required by Council of Environmental Quality Guidelines.

Sincerely,

INTERGOVERNMENTAL RELATIONS DIVISION

Dolores Streeter  
A-95 Coordinator

DS:bm  
Enclosures





# OREGON PROJECT NOTIFICATION AND REVIEW SYSTEM

## STATE CLEARINGHOUSE

Intergovernmental Relations Division  
155 Cottage ST NE Salem, Oregon  
Phone: 378-3732 97310

JUN 15 1980

### PNRS STATE REVIEW

Project #: OR 830501-038-4

Return Date: \_\_\_\_\_

To Agency Addressed: If you intend to comment but cannot respond by the return date, please notify us immediately. If no response is received by the due date, it will be assumed that you have no comment and the file will be closed.

### PROGRAM REVIEW AND COMMENT

TO STATE CLEARINGHOUSE: We have reviewed the subject Notice and have reached the following conclusions on its relationship to our plans and programs:

- ( ) It has no adverse effect.
- ( ) We have no comment.
- ( ) Effects, although measurable, would be acceptable.
- ( ) It has adverse effects. (Explain in Remarks Section)
- ( ) We are interested but require more information to evaluate the proposal. (Explain in Remarks Section)
- (X) Additional comments for project improvement. (Attach if necessary)

### REMARKS (Please type or print legibly)

Based on the results of the survey of the Buffalo Flat survey (15 sites mi<sup>2</sup>), I suspect<sup>E</sup> that the site density for Meander Rock will also be high. The Christman Lake-Fort Rock Valley area appears to have been one of the most densely occupied areas in the Northern Great Basin. The earliest date for area now around 12,000 years.

79

Draft EIS  
West Coast  
Over Horizon -  
Backscatter Radar  
Lake/Klamath Co

312

Agency SHPO

PNRS #2

By

Phone Number

FOR FURTHER INFORMATION  
PLEASE CONTACT LELAND  
GILSEN AT 378-5023



# OREGON PROJECT NOTIFICATION AND REVIEW SYSTEM

## STATE CLEARINGHOUSE

Intergovernmental Relations Division  
155 Cottage ST NE Salem, Oregon  
Phone: 378-3732 97310

JUN 15 1983

### PNRS STATE REVIEW

Project #: OR 351-000-000-0

Return Date: \_\_\_\_\_

To Agency Addressed: If you intend to comment but cannot respond by the return date, please notify us immediately. If no response is received by the due date, it will be assumed that you have no comment and the file will be closed.

### PROGRAM REVIEW AND COMMENT

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- ( ) It has Adverse effects. (Explain in Remarks Section)
- ( ) We are interested but require more information to evaluate the proposal. (Explain in Remarks Section)
- (xx) Additional comments for project improvement. (Attach if necessary)

RECEIVED

MAY 10 1983

### REMARKS (Please type or print legibly)

The Aeronautics Division has some concerns about the radar's potential interference with aircraft communications and air navigation as detailed in appendix C to the Draft Environmental Statement. If interference should occur, we believe the USAF should be responsible for any mitigation measures to assure that aircraft traversing the area can operate safely.

43

313

Agency Aeronautics

By

Paul E. Burkett

PNRS #2

Phone Number \_\_\_\_\_



# OREGON PROJECT NOTIFICATION AND REVIEW SYSTEM

## STATE CLEARINGHOUSE

Management Services Div.  
Dept. of Environmental Quality

Intergovernmental Relations Division

155 Cottage ST NE Salem, Oregon

Phone: 378-3732 97310

JUN 07 1983

MAY 16 1983

### PNRS STATE REVIEW

Project #: OR-83000-008-4

Return Date:                     

To Agency Addressed: If you intend to comment but cannot respond by the return date, please notify us immediately. If no response is received by the due date, it will be assumed that you have no comment and the file will be closed.

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- ( ) We are interested but require more information to evaluate the proposal. (Explain in Remarks Section)
- (X) Additional comments for project improvement. (Attach if necessary)

-----  
REMARKS (Please type or print legibly)

[ Air Force Note: The attachments to the letter  
also contained a copy of the June 2, 1982 letter  
by Richard J. Nichols that appears elsewhere in  
this volume. ]

314

Agency DEQ

PNRS #2

By W. T. J. Miller

Phone Number 388-6146

Resources Building  
1416 Ninth Street  
95814

(916) 445-5656

Department of Conservation  
Department of Fish and Game  
Department of Forestry  
Department of Boating and Waterways  
Department of Parks and Recreation  
Department of Water Resources

GEORGE DEUKMEJIAN  
GOVERNOR OF  
CALIFORNIA



THE RESOURCES AGENCY OF CALIFORNIA  
SACRAMENTO, CALIFORNIA

Air Resources Board  
California Coastal Commission  
California Conservation Corps  
Colorado River Board  
Energy Resources Conservation  
and Development Commission  
Regional Water Quality  
Control Boards  
San Francisco Bay Conservation  
and Development Commission  
Solid Waste Management Board  
State Coastal Conservancy  
State Lands Commission  
State Reclamation Board  
State Water Resources Control  
Board

JUN 22 1983


Mr. Ro Raffa  
ESD/SCU-4  
Hanscom AFB  
MA 01731

Dear Mr. Raffa:

In a letter dated June 6, 1983, the State of California transmitted comments of State agencies on the Draft Environmental Statement, Continental United States Over-the-Horizon Backscatter Radar System.

After that letter was sent to you we received the attached comment from the California Department of Conservation. We regret this delay, but the State would appreciate having the comment considered as a part of its official response regarding this project.

Sincerely,

  
for GORDON F. SNOW, Ph.D.  
Assistant Secretary for Resources

cc: State Clearinghouse  
Office of Planning and Research  
1400 Tenth Street  
Sacramento, CA 95814  
(SCH No. 83050902)

# Memorandum

To : Dr. Gordon F. Snow  
Assistant Secretary for Resources

Date : JAN 11 1978

Subject: Draft EIS for U.S.  
Air Force West Coast  
OTH-B Radar System,  
Modoc and Sacramento  
Counties.  
SCH No. 83050902.

From : Department of Conservation—Office of the Director

The Department of Conservation has reviewed the draft environmental impact statement (DEIS) for the U.S. Department of the Air Force's proposed West Coast Over the Horizon - Backscatter Radar System. Our comments address the discussion of the geotechnical conditions of the proposed California facility sites in Modoc and Sacramento Counties and are items which should be reassessed and/or corrected.

1. The DEIS indicates that the geologic setting of the two proposed Modoc County sites is indicative of relatively young (Quaternary) volcanic activity affecting the site areas, but does not include a volcanic hazards assessment in the evaluation of natural disasters.
2. Relative to the evaluation of natural disasters potentially impacting the proposed Modoc County sites, the DEIS states that no recent earthquakes have occurred within 150 miles of the study areas. However, Real and others (1978) show numerous earthquake epicenters of magnitude M4.0 or greater, occurring between 1900 and 1974, within 150 miles of the sites; Topozada and others (1979) show additional epicenters of earthquake occurring between 1975 and March 1979 within 150 miles of the sites. Also, Jennings (1975) shows two major Quaternary faults, the Likely fault and Surprise Valley fault, in Modoc County, the closest within approximately 15 miles of the sites (Jennings, 1975; Gay and Aune, 1958).
3. In the discussion of natural disasters relative to the Sacramento County site, the DEIS states that the closest fault to the site is the Midland fault, approximately 30 miles from the site. According to Jennings (1975) and Wagner and others (1981) there are at least two faults, the Bear Mountain fault zone and an unnamed fault in Yolo County north of Woodland, closer than 30 miles to the site, both of which show signs of Quaternary activity along at least parts of their length (Jennings, 1975; Woodward-Clyde Consultants, 1977).

80

4. In the sections containing the discussions of environmental consequences, the DEIS appears to be placing all of the sites evaluated in the same seismic risk zone ("Seismic zone map ... Zone 1, minor damage probability", page 4-78) as the first site discussed, the Mean Rock study area in Oregon. The seismic zonation map used by the Air Force in this evaluation should be checked to verify that all of the sites in Oregon and California are in the same seismic risk zone. We note that the Uniform Building Code, 1982 edition, has California in Seismic Zones 3 and 4.

81

Contributing to the preparation of these comments was Lynn Jones of the Department's Division of Mines and Geology. For questions regarding the comments, contact Perry Amimoto, Advisory Services Officer, at (916) 322-3119.

*Esther Maser*

Esther Maser  
Environmental Program Coordinator

cc: Perry Amimoto  
Lynn Jones

References

Gay, T.E., Jr., and Aune, Q.A., 1958, Alturas Sheet - Geologic map of California; California Division of Mines and Geology.

Jennings, C.W., 1975, Fault map of California; California Division of Mines and Geology Data Map No. 1.

Real, C.R., Topozada, T.R., and Parke, D.L., 1978, Earthquake epicenter map of California; California Division of Mines and Geology Data Map Sheet 39.

Topozada, T.R., Real, C.R., and Pierzinski, D.C., 1979, Seismicity of California, January 1975 through March 1979; in California Geology, Vol. 37, No. 7, July 1979, p. 139-142.

Wagner, D.L., Jennings, C.W., Bedrossian, T.L., and Bortugno, E.J., 1981, Geologic map of the Sacramento quadrangle; California Division of Mines and Geology Regional Map Series Map No. 1A.

Woodward-Clyde Consultants, 1977, Earthquake evaluation studies of the Auburn dam area; prepared as U.S. Bureau of Reclamation Open File Report.



OREGON PROJECT NOTIFICATION AND REVIEW SYSTEM  
STATE CLEARINGHOUSE

Intergovernmental Relations Division  
155 Cottage ST NE  
Salem, Oregon 97310, Phone: 378-3732

STATE A-95 REVIEW ADDENDUM

APPLICANT: Department of the Air Force  
PROJECT TITLE: West Coast Over-the-Horizon-Backscatter Radar System  
PNRS #: OR830509-088-4  
DATE: June 28, 1983

The State Clearinghouse has received additional comments from

Oregon Department of Fish & Wildlife  
subsequent to our conclusion letter of June 21, 1983  
please see copy (ies) attached for your attention.

Additional Clearinghouse comments:

- ( ☒ ) Please consider this letter and enclosure(s) an addendum to our previous letter.
- ( ☐ ) A copy of this letter and enclosure(s) should be forwarded to the federal funding agency as required by OMB A-95.

If you have questions please contact the State Clearinghouse at the above address and telephone number.



# OREGON PROJECT NOTIFICATION AND REVIEW SYSTEM

## STATE CLEARINGHOUSE

Intergovernmental Relations Division  
155 Cottage ST NE Salem, Oregon  
Phone: 378-3732 97310

JUN 23 1983

### PNRS STATE REVIEW

Project #: OR 650509-088-4

Return Date: JUN 13 1983

To Agency Addressed: If you intend to comment but cannot respond by the return date, please notify us immediately. If no response is received by the due date, it will be assumed that you have no comment and the file will be closed.

### PROGRAM REVIEW AND COMMENT

TO STATE CLEARINGHOUSE: We have reviewed the subject Notice and have reached the following conclusions on its relationship to our plans and programs:

- ( ) It has no adverse effect.
- ( ) We have no comment.
- (X) Effects, although measurable, would be acceptable.
- ( ) It has adverse effects. (Explain in Remarks Section)
- ( ) We are interested but require more information to evaluate the proposal. (Explain in Remarks Section)
- (X) Additional comments for project improvement. (Attach if necessary)

REMARKS (Please type or print legibly)

*See attached Comments*

[ Air Force Note: Attachment to letter contained a copy of the June 10, 1983 letter by Anthony Foast that appears elsewhere in this volume. ]

Agency

F + W

By

Tony Foast



I OPPOSE THE RADAR SYSTEM  
FOR ARE STATE TO BE PUT IN  
CHRISTMAS VALLEY PUT IT IN  
SOUTHERN NAVAJO OR SOME WHERE  
ELSE. ARE E.I.S DONT ADDRESS THE  
STRATEGIC-TARGET ISSUE AT ALL.

11

I'LL TELL YOU ONE THING YOU WILL  
THINK I'M THE ENEMY IF THIS RADAR  
SYSTEM COMES TO OREGON. I'LL DO  
EVERY THING IN MY POWER LEGALLY TO  
STOP THE INSTALLATION

SIGNED  
OREGONIANS AGAINST

Rae Spaulding

Please don't put the over-the-  
horizon scanner in Christmas  
Valley. I own a home in  
Bend & don't want "targets"  
for Russia so close. Put  
it where there's no large  
communities close enough  
to be wiped out.

11

CORI PORTER-  
645 N.E. River-  
Bend Ore - 97701

#### 4 RESPONSES TO COMMENTS

Public comments on the Draft EIS are contained in the transcript of the public hearings (Sections 2.1 to 2.3), the written materials submitted at the public hearings (Section 2.4), and letters (Section 3). Responses to these comments follow. Changes to the text in the Draft EIS (Part I) are included in Section 7. The location of the comment(s) in this document is referenced at the beginning of each response.

1. (See p. 229 and also pp. 34, 141, and 144.) The objective of the bioeffects analysis described in the Draft EIS was to search for evidence that a health hazard could exist outside the exclusion fence of the OTH-B transmitter. No such evidence was found. However, it is scientifically impossible to prove the nonexistence of any hazard. Therefore, the appropriate conclusion to draw is that, in the absence of positive evidence, it is extremely unlikely that a health hazard would exist. (See Part I, Section 4.1.1.2, Human Health Effects.)
2. (See pp. 90, 97, 155, 161, 163, and 229.) The Air Force does not contemplate conducting a baseline health study of the kind suggested. Uncontrolled factors (such as diet, smoking, and exposure to urban pollutants) in the populations involved would render meaningless any attempt to statistically associate clinical changes in such populations with the low levels of RFR exposure from OTH-B. The levels of RFR in population centers outside the exclusion fence of the OTH-B transmitter will be negligible compared to other sources of RFR. (We repeat for emphasis that RFR is nonionizing radiation; there is no radioactivity [i.e., ionizing radiation] associated with the OTH-B radar.)
3. (See pp. 243 and 244.) The conclusion of the housing analysis is based on estimates of probable conditions in 1986-1987. Given the uncertainty of the housing market nationwide, as indicated by the boom-bust conditions experienced between 1974 and 1982, future conditions cannot be surmised with accuracy. Based on the past responsiveness of developers in the Mountain Home area, tempered by the general variability of the housing industry, the conclusion (Part I, Section 4.9.3.4) that "incoming personnel are . . . likely to be able to find housing" is appropriate. The analysis notes the experience of Mountain Home in meeting the housing needs of Air Force personnel and the extensive housing resources in the Boise area.

These findings are summarized several times in the introductory portion of the Draft EIS, but in some cases the summary statements do not completely reflect the conclusions of Part I, Section 4.9.3.4. Therefore, the following changes have been made to the text of Part I.

- o Page S-10, third paragraph: the second sentence has been deleted.
  - o Page S-18, under Mountain Home: the statement "shortage of rental housing units possible but unlikely" has been replaced with "adequate housing in region."
  - o Page 2-16, paragraph C: the statement "possible shortage of rental units" has been replaced with "adequate."
  - o Page 2-18, Section 2.8.3.2: the clause "except perhaps for rental units at Mountain Home AFB" has been deleted.
4. (See p. 244.) Part I, Section 3.9.2.4 was changed to reflect the information provided.
  5. (See p. 244.) The text has been revised to reflect the information provided.
  6. (See p. 244.) The Mountain Home AFB Level Resource Statement refers to these units as relocatables. They are permanent units that were moved from Glasgow AFB and placed on permanent foundations.
  7. (See p. 244.) The analysis is based on what is termed "worst case assumptions" because its intent is to address the maximum potential demand for housing in the community. To avoid confusion, the term "worst case" has been deleted from the text. However, the analysis has not been changed.
  8. (See p. 244.) The estimate of the percentage of incoming personnel was derived from the 1982 Mountain Home AFB Housing Referral Services Report (DD Form 1656) which records the housing tenure of nearly all persons seeking off-base housing in 1982. The report indicated that 91% of the persons housed through the Housing Referral Office obtained rentals. Nationwide, the proportion of Air Force personnel that rent is typically about 80%.
  9. (See p. 245.) The statement in question reads "rentals might not be as readily available" (inferred) as ownership units. The text has been changed to clarify this point. Because there will be fewer Air Force personnel seeking to buy rather than rent, initially (until market supply adjusts) the buyers would face

less relative competition and would have a greater selection than renters.

10. (See p. 262.) The Air Force does not believe that there are any reasonable alternatives to the deployment of the OTH-B system. Foreign bombers and cruise missile carriers today can approach to within a few tens of miles of the U.S. borders without being detected. The Air Force OTH-B proposal would correct that deficiency with a cost-effective and timely solution. A fleet of aircraft carrying radar could also provide greater warning time, but the acquisition and operating costs are prohibitive. Radar based on satellites may, in the mid-1990s, also provide coverage, but the Air Force does not believe it is reasonable to wait a decade for a possible solution to a deficiency that can be corrected today. Therefore, the only realistic alternative to deployment of the OTH-B system is the "no action" alternative.
11. (See pp. 41, 99, 141, 263, 279, 280, 290, 320, and 321.) The role of the OTH-B system is to detect a large-scale attack by aircraft and air-to-surface (i.e., cruise) missiles against North America and to alert the defensive and retaliatory forces of the United States. After detection, other U.S. radar systems would provide information to defensive forces for tactical operations. Similarly, after detection and alert, retaliatory forces would have no important need for the OTH-B. Therefore, the Air Force believes that the West Coast OTH-B system would not be a significant military target and that the probability that any portion of the OTH system would be subject to attack is remote and completely under the control of a foreign power. Millions of people live near Air Force bases, missile sites, Navy bases, Army bases, other public and private defense-related facilities, and centers of industry and government--all of which are potential targets in a war. The purpose of the OTH-B system is to help reduce the likelihood that any country would be tempted to start a war, and thus to help reduce the risk faced by everyone.
12. (See pp. 37, 255, 264, 296, and 305.) The safe separation distance from the transmitter for handling EEDs is in part a function of ground conductivity. Part I, Page C-46 indicates that the safe separation distance is likely to be between 6 miles and 17 miles depending on soil conductivity and that the transmitter could affect EEDs on mountain tops up to 25 miles away that project into the main beam of the radar. Based on preliminary soil conductivity measurements made by the Air Force in spring 1983, the safe separation distance for handling EEDs has been estimated to be at the lower end of the range cited on page C-46. Extensive on-site field strength measurements will be made during radar testing to establish the location of the exclusion fence and the precise safe separation distance for EEDs.

The EED warning area will extend over a 190° sector in front of the transmitters. After the safe separation distance is determined, the Air Force will post and maintain suitable warning signs on all established roads and trails in the 190° sector. In addition, the Air Force and the Bureau of Land Management will take measures to eliminate the potential danger if the use of electric detonators in this sector becomes necessary.

The Air Force will also work with BLM to establish procedures to inform applicants for land use and other permits of the potential hazard to EEDs. Such procedures will not be required of the U.S. Forest Service because the receiver does not pose a potential EED hazard.

In the unlikely contingency that electric detonators are needed to control wildland fires within the EED warning area, the Air Force will coordinate with BLM to meet the emergency by changing frequency, suspending operation in the affected sector, or some other means.

Two aggregate pits are located in the Christmas Valley area. One is 6.5 miles east of the east end of the Christmas Valley airstrip or about 7 miles southwest of the Buffalo Flat study area and 12 miles south of the Mean Rock study area. The major rock pit in the area is located about 1.5 miles east of Hayes Butte, or 27 miles southwest of each study area.

It is not likely that the operation of the OTH-B would affect blasting in the major pit. It is also not expected that there will be effects on the smaller pit, but this will be determined after the on-site RFR measurements are completed. If there are hazards, the Air Force will work with the county to identify methods to eliminate the hazard.

13. (See p. 264.) Part I, Sections 3.1.2.7 and 4.1.3.7 have been changed to reflect the information provided.
14. (See p. 266.) The benefits cited are contingent on the findings of engineering studies assessing various potential sources of electrical power.
15. (See p. 267.) The Air Force and its independent consultants have endeavored to present as unbiased a review of the literature on the bioeffects of RFR as possible. The commenter is referred specifically to the primary reference on RFR bioeffects cited on p. 4-6 of the Draft EIS: Report SAM-TR-83-1, entitled "Bioeffects of Radiofrequency Radiation: A Review Pertinent to Air Force Operations," by L. N. Heynick and P. Polson. This review discusses studies that yielded positive consequences of RFR exposure as well as studies that produced negative results.

However, most studies performed to date were conducted at RFR levels far higher than those that will exist outside the exclusion fence of the OTH-B transmitter, and no significant evidence was found to indicate that such low levels would be hazardous to human health.

16. (See p. 267.) As discussed on p. 4-17 of the Draft EIS, the average power densities at population centers near the OTH-B transmitter are lower than not only the new ANSI values but also the new USSR standard for general population exposure. The safety of the OTH-B system with regard to RFR exposure was assessed from the bioeffects literature, not on the basis of exposure standards, which were presented simply as background information.
17. (See p. 268.) As indicated in the response to the previous comment, the question of how safety standards are set is not central to an EIS based on examination of scientific studies of RFR bioeffects. Nevertheless, the Air Force will, at minimum, comply with all present or contemplated standards.
18. (See p. 268.) The EPA has conducted a variety of important investigations on the bioeffects of RFR. Many of these studies were analyzed in the review cited on p. 4-6 of the Draft EIS. EPA has recently released for comment its draft review of the bioeffects of RFR in the 500 KHz to 100 GHz range. The document will serve as the basis for limits on general population exposures to RFR, which EPA is scheduled to propose in late 1983.
19. (See p. 268.) Development of rationales or conceptual approaches to setting exposure standards is outside the scope of this EIS.
20. (See p. 268.) The threshold for any specific RFR bioeffect depends on the nature of the effect. The power densities outside the exclusion fence of the OTH-B transmitter will be below any threshold reported.
21. (See p. 268.) As discussed under "Misconceptions" (Section 4.1.1.2.7, pp. 4-56 and 4-57 of the Draft EIS), unlike ionizing radiation such as that produced by nuclear processes, RFR (which is nonionizing) at low incident power densities is readily dissipated in the form of heat and does not accumulate in the body. Therefore, cumulative exposure is not a concern.
22. (See p. 268.) Because of the extremely low levels of RFR outside the exclusion fence of the OTH-B transmitter, there is no added medical hazard from OTH-B regardless of the degree of susceptibility of any individual.

23. (See p. 270.) The Air Force is well aware of the concern of the short-wave listening community about the possibility of interference from the radar. The list of concerns on p. S-2 of the Draft EIS includes only those expressed at the public scoping meetings held prior to beginning preparation of the Draft EIS. The particular concern of the short-wave listening community was not raised during those meetings and, for that reason only, was not included in the list.
24. (See p. 270.) The Frequency Panel of the Military Communications-Electronics Board has instructed the Air Force to "... develop operating procedures to insure that the OTH-B radar system will not cause harmful interference to authorized users." The position of the Air Force is that ANARC short-wave-listener hobbyists are not authorized users of the Fixed, or point-to-point, portions of the HF band, where the radar will normally operate. Regardless, OTH-B operating procedures should prevent the OTH-B from being a source of interference to all users.

Section 4.1.3 of the Manual of Regulations and Procedures for Federal Radio Frequency Management (REV 1/79) states that "Application of the U.S. Government Table (of frequency allocations) is subject to the recognition that: . . . under Article 38 of the International Telecommunication Convention, administrations 'retain their entire freedom with regard to military radio installations of their army, naval and air forces.'" This means that a nation's military forces are not bound by the "no harmful interference" rule in any case where it is determined, unilaterally by the military, that a given transmission is important to the nation's defense. Nevertheless, the OTH-B radar is extremely unlikely to cause any harmful interference.

25. (See p. 271.) The OTH-B radar receiving system's channel-monitoring capability is of sufficient sensitivity that co-channel communications signals will be sensed by the radar either specularly by one or many ionospheric hops or via scatter from the earth's surface in the vicinity of a potentially affected listener.

The receiver system will, in fact, be much better at detecting frequencies in use than was indicated in the Draft EIS. That document indicates (on pp. S-5, 4-63, and C-21) that the radar could be in the skip zone for a relatively nearby HF transmitter and that, hearing neither the transmitter's sky wave nor ground wave, the radar would believe the channel to be unoccupied. In such a situation, however, the radar would actually be very likely to receive backscatter from the first-hop ground (or ocean) area that the transmitter illuminates and so would know that the frequency was in use. Further, it is not likely that there would be any situation in which the radar would fail to hear an existing signal either by way of multiple hops or by way



of backscattering. Thus, the radar would almost never fail to detect an operating transmitter.

The U.S. Coast Guard, through IRAC, expressed similar concern about the skip-zone problem described above. It was specifically concerned that the radar might interfere with shipboard reception of signals from a land-based HF transmitter if the radar receiver were in that transmitter's skip zone. The Air Force showed that the backscatter process would permit the radar to sense the Coast Guard transmitter's operation and avoid its frequency.

26. (See p. 271.) To develop contour maps of the U.S. showing predicted radar field strengths for particular frequencies at particular times of day would not be practical. For one thing, the field strength depends directly on the output power of the radar, which is not fixed, but which would continually be adjusted in real time to be as low as possible for satisfactory operation. Moreover, HF propagation depends not only on the frequency and the time of day, but also on the season of the year, the point of time in the 11-year solar sunspot cycle, and on totally unpredictable solar and geomagnetic occurrences. Thus, even ignoring the variable-output-power problem, a great many maps would have to be developed to cover all the various combinations of even the known variables. Then, since the radar's operating frequency is chosen in real time to provide illumination of some desired region while avoiding interfering with other known current users of the spectrum, one would never know which of all the field-strength maps was applicable at that instant.

Further, it should be clearly understood that the presence of the radar signal at a location does not, in itself, constitute interference. Even if simplifying assumptions were to be made so that radar field-strength maps could be developed, they would provide only part of the information necessary to judge whether interference was likely at a particular location on the map. The other two requirements for that location, without which no interference can possibly occur, are: (1) the simultaneous presence of some other signal on the same frequency (or very close to it) having a signal strength comparable to or lower than the radar's, and (2) the presence of some person at that location who, at that instant, wanted to listen to that other signal. Finally, only if that person is the authorized recipient of the other signal, will there be interference to an authorized user of the HF spectrum.

In view of the great expense that would be incurred in the development of even simplified signal-strength maps, and the limited role they could play in predicting interference, particularly since the other two requirements for the occurrence of interference are not well known, the Air Force does not plan to develop these maps. It can be said in brief that when the

radar does illuminate the ground, the radar field strengths there will be no greater than those of VOA, BBC, Radio Moscow, Radio Havana, or many other International Broadcast transmitters (although the radar will be on different frequencies so as not to interfere).

27. (See p. 271.) The sentence in question would have been more appropriate had it begun "Intermittent operation of the ERS . . . ." However, there is no intent to confuse or mislead the reader; Part I, Section C.2.5 makes the fact of intermittent operation perfectly clear, as does Part I, Section C.3.1.1, "Effects within the Radar's Authorized Operating Bands," which uses exactly those words.

Study of the ERS records shows that the ERS operated for much more than the approximately 900 hours mentioned in Part I, Section C.2.5; the 900 hours was the testing time specified by contract. The ERS actually operated about 2,300 hours over 330 working days beginning June 1980. The operating periods exercised all the frequency spans available (from 6.7 MHz to 22.3 MHz), and the cumulative operating time was approximately the same for each hour of the day, instead of being concentrated in the day-night and night-day transition periods as Section C.2.5 suggests. The ERS operated 24 hours per day on a number of occasions and thus did sometimes operate "during times of peak HF band occupancy or of peak HF reception." (The Draft EIS stated correctly in Section C.2.5 that "it did not generally operate 24-hr/day.")

Thus, there was much more opportunity than previously stated for ham radio operators, shortwave listeners, and Fixed Service providers to notice interference. During this intermittent operation of the ERS, most of the very few complaints of ERS interference originated during periods when the ERS was not transmitting at all; other complaints were for frequencies other than the ones the radar was using.

The broad assertion that "the ERS is not comparable to the operational radar" ignores the fact that the operational radar would consist of three units almost identical to the ERS, each operating independently within its own 60-degree surveillance sector (the same as the ERS).

The ERS had a maximum available power output of 1.2 MW, as would each of the three faces of the West Coast OTH-B. One cannot assert, however, that the ERS's power was a third that of the operational OTH-B; the three transmitter banks of the OTH-B would operate independently, using different frequencies and power levels, directing their beams toward different areas, and not necessarily operating at the same time. The fact that there are three faces would not be apparent at some distant location because that location could only be illuminated on a given

operating frequency by one of those faces. Thus, in power terms, the operational OTH-B radar would be equivalent to the ERS. The ERS sometimes used the maximum available 1.2 MW, although, as stated in Part I, Section C.2.5, the output power was typically 720 kW. This is 60% of the West Coast system's maximum available power, not "less than a third."

28. (See p. 272.) The Air Force makes no claim that the radar would typically operate at frequencies above 15 MHz so that typically no harmonics would fall into the HF band (i.e., 3-30 MHz). Part I, Table C-1 (p. C-11) shows clearly that some harmonics could indeed fall into the HF band, but that most of them would not.

However, a signal that falls within the HF band would not necessarily propagate by sky wave to distant locations. Although it is stated (p. C-12) that "some harmonics and spurious signals could propagate by sky wave," this propagation is actually quite unlikely because the radar would operate near the highest frequencies that would propagate at any given time. (There is a continually varying [see Response No. 26] frequency above which signals would not propagate by sky wave; unless the radar were operating at a frequency less than half this maximum propagation frequency, the radar's second harmonics would be above it, and so would not propagate by sky wave. The radar, however, would not typically operate at frequencies so low relative to the maximum propagating frequency.)

Even if there were sky-wave-propagated harmonic signals, they are not expected to produce interference. Just as with the radar's fundamental, the presence of a sky-wave-propagated harmonic signal at some location does not by itself constitute interference. (See Response 26.) As described in Part I, pp. C-11 and C-12, the effective radiated power levels of the harmonics are expected to be very low--on the order of 1 W. In comparison, the potentially interfered-with signal(s) would most generally be radiated by transmitters having output powers of many hundreds to thousands of watts. Thus, it is unlikely either that the radar would propagate harmonics or that they would be an interference threat.

29. (See p. 273.) See Response No. 10.
30. (See p. 275.) The assestion that the Draft EIS contains no "measures for dealing with specific instances of interference to other users of the HF Broadcasting and Fixed Service bands" is not correct; the Draft clearly states on p. C-22 how those who believe they are experiencing interference may inform the Air Force of that fact. More responsive procedures are under development for receiving reports of interference to authorized users of the Fixed portions of the HF bands and for dealing with them.

The Air Force does have the right to use portions of the HF band for radiolocation and is well aware of the requirement that, in doing so, "harmful interference shall not be caused" to other legitimate users. Whenever possible, the radar would operate in the Fixed parts of the spectrum. However, if at some time the Air Force considers it to be in the national interest to use a frequency in the International Broadcast band, this would be done--without prior notification and probably without producing interference. Military systems of all nations have that right; U.S. systems do not abuse it.

The Air Force is well aware of its responsibility to avoid causing interference, and has no intent to "persist in interference when it occurs." One of the difficulties of predicting interference is that the mere presence of the radar's signal at some location does not by itself constitute interference (see Response No. 26); much less does it constitute interference to an authorized user of the HF band.

Thus, while the Air Force will sincerely attempt to prevent interfering--by avoiding occupied channels, by abandoning a channel that becomes occupied by another legitimate user, and by using the lowest practical power level--the Air Force cannot predict all possible interference situations, and can only respond when valid complaints of interference are received.

Among the conditions under which the radar would be allowed to operate are the following:

- Prior to obtaining operational assignments, the Air Force will develop operating procedures to insure that the OTH-B radar system will not cause harmful interference to authorized users. (The Air Force will provide a copy to IRAC. These procedures will include a contact who has the responsibility and authority to immediately eliminate interference by this radar.)
- If verified recurring interference from the OTH-B radar is reported on a commonly used frequency, the radar will be programmed to exclude use of that frequency.

Both southern California and Alaska may occasionally be illuminated by the radar. However, there is little merit in siting monitoring equipment in the electromagnetically noisy environment in or near a significant population center. The OTH-B receiving system is to be placed far from such locations so as to avoid their electromagnetic noise; it will be capable of detecting occupied HF channels (so that they can be avoided) much better than will a receiving system in an urban area.

Although the Air Force believes that continual monitoring of the HF spectrum would always be necessary to maintain operation of the radar on clear channels, any "schedule information about HF channel use when such usage is regular, planned and/or predictable" will be gladly accepted. This schedule information may be useful, but not all the HF channel use will be so scheduled in the first place, and there are bound to be deviations from those schedules. For this reason, the Air Force intends to rely mainly on continuous real-time channel monitoring to locate clear channels for the radar's use, as well as to determine when a previously clear channel becomes occupied by another legitimate user of the HF spectrum.

The Air Force is currently developing procedures by which authorized users of the HF bands who believe that the radar is creating interference would have the opportunity to report their complaint in real time. Their complaint would be received and evaluated by a person who would have the responsibility and authority to immediately eliminate interference caused by the radar to authorized users of the HF spectrum. That person would compare the details of the complaint (aural description, time, frequency, etc.) against the real-time radar operating parameters and would remove the cause of interference if the radar is at fault and the interfered-with signal is an authorized HF spectrum occupant.

The paragraph suggested by ANARC beginning "If a complaint of interference is received . . ." describes precisely the Air Force's philosophy and obligations in the matter. At this time, neither the communication link from the complainant to the interference-mitigating authority nor the operational procedures for establishing the validity of a complaint have been determined because testing and operation of the radar would not begin until 1985-1986. However, toll-free (i.e., 800-area code) phone numbers are under consideration for the communication links. When the procedures have been developed for receiving and evaluating reports of interference to authorized users, and for acting on complaints that are valid, the Air Force will make existence of these procedures widely known. ANARC will be able to help in this notification process.

31. (See p. 277.) The map referred to, entitled "Representative CONUS OTH-B Radar Barrier Coverage," shows that parts of Alaska and southern California are between those two arcs, indicating that they would be illuminated from time to time by the radar. However, the radar would determine what frequencies are reaching those areas by means of energy scattered from them back to the radar. Thus, the radar would know not to use frequencies that would interfere with radio reception there.

32. (See p. 277.) The studies of possible synergism between drugs and RFR described briefly on p. 4-44 of the Draft EIS are elaborated in the review cited on p. 4-6. The results, both positive and negative, were obtained at an average power density of  $1 \text{ mW/cm}^2$ . There is no evidence that synergism would occur at the power densities that would occur outside the exclusion fence of the OTH-B transmitter.
33. (See p. 277.) The analysis of socioeconomic issues estimates changes that are expected in the local economy, and only the \$31 million is relevant to that analysis. Total system cost could be \$500 million.
34. (See p. 277.) "Ane" should indeed read "Area."
35. (See p. 281.) The Air Force is aware of the limitations of the solid waste disposal site in Christmas Valley. After the OTH-B site is selected and preliminary engineering studies are completed, the Air Force will work with its contractor, the Oregon Department of Environmental Quality, and Lake County to develop an acceptable method to dispose of solid wastes.
36. (See p. 281.) The Air Force will contact the Oregon Department of Environmental Quality concerning the regulations governing sewage disposal and the procedures for obtaining permits prior to initiating construction in the Christmas Valley area. The requirements for sewage disposal facilities cannot be defined at this time. The construction subcontractors, the precise labor requirements, and the sources of labor have not yet been established. Should any new sewage disposal systems be required to accommodate the construction workforce, the Air Force and its contractor will coordinate with the department in designing and applying for permits for those facilities.
37. (See p. 283.) The information provided in these comments supports and supplements that presented in Part I, Section 4.1.2.2.1. Because the type and size of backup generators to be used has not yet been determined by the Air Force, the actual emission control equipment and techniques that would be employed cannot be specified now. Scheduled usage of 1 hr/week for testing and maintenance has been stated; because the generators would be used only in emergencies, use for this purpose cannot be predicted. After engineering studies are complete, the Air Force will consult with the Oregon Department of Environmental Quality about control measures and permits for the backup power source for the transmitter site.
38. (See p. 284.) Part I, Section 4.1.2.2 has been changed accordingly.

39. (See p. 284.) The Air Force will comply with all pertinent state regulations if a new power source is required at Kingsley Field. The annual emissions associated with the 1.2-MW generators at the operations center would be 0.3 tons of CO, 0.01 tons of hydrocarbons, 1.0 tons of NO<sub>x</sub>, and 0.3 tons of SO<sub>2</sub>.
40. (See p. 291.) The quotations from the Draft EIS conclusions are so selective that they are quite misleading. For example, the third paragraph on p. S-5 begins with the qualifying phrase, "If the radar were inadvertently operated on a channel in use in the international broadcast bands," which precedes the quoted sentence fragment regarding interference to broadcast listeners. Also, what was said to be "unpredictable" in that selectively quoted paragraph is the ratio of the broadcast signal's power to the radar signal's power at each potentially interfered-with receiver at unknown locations throughout the world.

No attempt was made to determine the percentage of time that the OTH-B may cause interference because of the difficulties of predicting or determining interference (See Responses No. 26 and 30.)

It is impossible to determine at this time how often or when it might be necessary to turn to the broadcast bands to find a clear channel. However, if finding clear channels in the broadcast bands is as difficult as the comment indicates, there would be no need to restrict the radar from using these bands; the radar operators would indeed find them overcrowded and, wishing to avoid interference to their own operations, would not use them.

41. (See p. 298.) The information provided verifies that McChord AFB personnel currently reside in Bethel School District. The conclusion that some OTH-B personnel may choose to reside in that district (Part I, Section 4.7.3.5) is judged to be accurate.
42. (See p. 255.) After the site has been selected and access alternatives have been developed, the Air Force will consult with Lake County about routes, construction standards, funding, and maintenance.
43. (See pp. 24, 27, 55, 255, and 313.) No impacts on the operation of the Christmas Valley airport (other than possible increased use) are expected.

Interference to aircraft communication is a very remote possibility that was considered in Part I, p. C-32. No aircraft communication interference problems were found during operation of the ERS in Maine. When the OTH-B radar is being tested, and before it becomes operational, the Air Force will cooperate with the FAA, as was done in Maine, to determine whether any interference problems exist. If there are potential problems,

the Air Force will take whatever steps might be necessary to resolve them.

The Air Force will request and act on the advice of the FAA regarding the issuance of a NOTAM or some other form of notification to pilots to call attention to the presence of the radar. Selecting the form that that notification takes (a NOTAM, or a note on a Low Altitude Enroute Chart, or both, or some other means) is the responsibility of the FAA. (Airspace Restricted Areas are clearly indicated on these charts.) However, the area around the radar would not be restricted by the Air Force.

44. (See 257.) The Air Force accepts this recommendation.
45. (See p. 258.) Although a formal extension was not warranted, comments were nevertheless accepted up to the time of printing of Part II.
46. (See p. 258.) Although the OTH-B transmitter would be capable of operating at an output power level of 1.2 MW, it would seldom use this amount of power because, as described in Part I, Section C.2.2.4, the power level would be adjusted to that which would provide an adequate signal-to-noise ratio. The modulation has been designed so that the power levels outside the radar's operating band would be relatively low (see Part I, Section C.2.2.1.) and will not affect the amateurs' HF bands. (See the letter from ARRL Acting General Manager E. Laird Campbell on p. 292 of this document.) Unlike most amateur and CB transmitters, the OTH-B transmitter is to be located far from the neighbors so as to minimize BCI and TVI. (See Part I, Sections C.3.1.2.2 and C.3.1.2.4). The antenna array is directional, with a gain of 22 dBi.
47. (See p. 260.) Although the three newly acquired amateur bands (10.10-10.15 MHz, 18.068-18.168 MHz, and 24.89-24.99 MHz) were not included in Table C-3, the text following the table makes it clear that "the Air Force does not intend to operate the OTH-B radar in the amateur bands." Please note the final paragraph of the letter from ARRL Acting General Manager E. Laird Campbell (p. 292 in this volume), in which he states that ". . . the support of the Air Force (and Army and Navy) played no small part in the allocation internationally of [these] three new high frequency bands . . . ."
48. (See p. 260.) The third paragraph (of part I, Section C.3.1.2.1) simply states that the QST article was published and that the article urged amateurs to submit reports of hearing the radar, whether it was interfering or not. The Air Force was under no obligation to send tape recordings of the ERS signals. The Air Force does, however, plan to make audio recordings of typical OTH-B radar signals available when testing of the radar begins.



49. (See p. 260.) The Air Force did not limit the distribution of information regarding the ERS. The Federal Register routinely publishes official information regarding the construction and operation of systems such as the OTH-B radar and the availability of environmental impact documents. The referenced QST article, published in addition to all the normal avenues for release of information, reached at least 150,000 subscribers.
50. (See p. 260.) The Air Force stands by its conclusion that this type of radar can operate without unduly affecting users of the adjacent channels. If a larger number of amateurs (and other HF-band users) had been seeking more avidly for interference effects, or even to hear the radar, the likelihood is greater that the radar would have been heard and reported. However, a reasonable number of individuals were informed. Even if newsstand sales of the magazine QST are ignored, the April 1980 QST article describing the ERS reached at least 142,500 subscribers in the United States, 6,300 subscribers in Canada, and 5,000 subscribers in Europe, none of whom reported even hearing the radar, much less being bothered by it. (These figures were provided by QST Circulation Manager John Nelson for the May 1980 issue, and were rounded to the nearest hundred.)
51. (See p. 260) Although many current amateur HF receivers are built for receiving single-sideband rather than AM signals, owners of such receivers did not thereby lack the ability to receive the ERS signals; nor would they lack the ability to receive the OTH-B signals when it operates (although they would have to listen outside the amateur bands). The OTH-B radar signal produces a sound on a single-sideband receiver that is similar to, though noticeably different from, the sound on an AM receiver. (In both cases the sound can be described as a hum or buzz at the waveform repetition frequency.) Therefore, the amateurs' receivers did not deny them the opportunity to listen for the ERS. The Air Force, however, was under no obligation to provide them with any further information on the transmissions (such as times and frequencies), or to furnish tape recordings of the signals.
52. (See pp. 296 and 302.) Part I, Section 3.8.1.3.1 has been changed to reflect the information provided.
53. (See p. 296.) As mentioned in Part I, Section 4.1.2.3.2. and elsewhere in the Draft EIS, the Air Force will prepare a detailed plan for preventing fuel spills and for mitigating their impact if they occur as part of the facility design and siting process. Practices employed by the Air Force at other facilities are articulated in various manuals and documents. An example of one of these is, "Systems Manual, Operation and Maintenance, Real Property Installed Equipment," PAVE PAWS Support facilities, Otis AFB, prepared by United Engineers and Constructors (undated).

54. (See p. 296.) When the final facility siting analysis is conducted for the receiver and the exact location is identified, the Air Force will coordinate with regulatory bodies to design the most appropriate domestic wastewater disposal plan.
55. (See p. 296.) Discussion of these issues to the extent possible is included in the sections on water and land for each site. The Air Force will coordinate with regulatory bodies to design appropriate mitigating measures addressing water quality impacts of construction when the facility locations are determined and soil and subsurface conditions have been established.
56. (See p. 304.) The depth of treatment of the various sites is considered to be appropriate. The results of season-dependent field surveys conducted after the issuance of the Draft EIS are included in Section 5. These surveys corroborate the information provided in the Draft EIS.
57. (See p. 26.) Through about 190° in front of the antennas, the exclusion fence would be located at a distance of between 2,400 and 4,800 ft from the antenna backscreen, depending on the soil conductivity (See Response No. 12). Elsewhere, the distance will be slightly less than 500 ft. The resulting area to be fenced would be between about 900 and 2,400 acres.
58. (See p. 28.) Additional information is provided in Part I, Sections 4.1.3.6 and 4.2.3.6.
59. (See p. 31.) As noted in Part I, p. B-32, the transmitter in Maine has a nominal power output of 1.2 MW, and the antenna gain was the same as that planned for the West Coast installation. The principal difference is that the Maine system used only one transmitter and did not have antennas for bands A and F. Thus, within the 180° sector covered by the main beams of the West Coast system, the power densities would be about the same as those within the 60° sector covered by the Maine system. Outside this sector the maximum and average power levels would both be 100 times lower than the corresponding values within the coverage zone. In Maine, the average power levels outside the 60° sector of the main beam were still lower because only one instead of three transmitters was used. As noted on p. C-12, Part I, Section C.2.2.4, the power radiated by each transmitter would be reduced whenever propagation conditions permit.
60. (See p. 33.) There appears to be confusion between power consumption and power radiated. At no time would the radiated power exceed  $3 \times 1.2 = 3.6$  MW of RF power (Part I, p. A-13). Devices that convert input power at 60 Hz into radio frequency radiation are not very efficient, and substantial amounts of power are required for driving pumps, lighting, buildings, etc. For this reason, the required input power (at 60 Hz) would be as high as 12 MW. Ordinarily, it would be about 7 MW.

61. (See p. 35.) The commenter is correct in stating that the OTH-B transmitter would produce strong signals and that these would propagate as both sky waves and ground waves. Comparison with the "Russian Woodpecker" is inappropriate because the latter uses pulse modulation, generates a much wider spectrum, and has been careless about choice of carrier frequency.

There appears to be some confusion between milliwatts and milliwatts per square centimeter. As noted on p. B-25 in the Draft EIS, and based on actual measurements of RF power density, the exclusion fence would be located at a distance where the power density would not exceed  $0.1 \text{ mW/cm}^2$ . Consistent with Equation 19 on the same page, this corresponds to a field strength of about 20 volts per meter. As shown in Part I, pp. B-19 to B-24, the values of field strength at ground level decrease rapidly with increase of distance from the antenna array.

As noted in Part I, Section A.3, the radar would occupy bandwidths no greater than about 40 kHz. As noted in Section C.3.1.2.1, the Air Force would not operate the OTH-B radar in the amateur bands. For these reasons, and because no report of interference was confirmed during 16 months of operation of the Maine facility, it is highly improbable that West Coast amateurs would suffer interference from the OTH-B installation.

62. (See p. 252.) The information provided in these comments on the Preliminary Draft EIS was incorporated in the Draft EIS.
63. (See p. 52.) The answer to this question is provided in the Draft EIS in Section 4.1.2.3.1, p. 4-76.
64. (See p. 58.) The usual characteristics of the study areas and the surrounding areas are presented in Part I, Sections 3.1.2.8 and 3.2.2.8. The visual changes likely to occur are explained in Sections 4.1.3.8 and 4.2.3.8, where it is concluded that the use of either site would have little effect on the recreation and wilderness study areas in the area.
65. (See p. 60.) The ultimate impact on AUMs depends on the manner in which the BLM manages the resource. BLM currently indicates that the project would not cause a reduction in current AUM allotments. Refer to Part I, Sections 4.1.3.7 and 4.2.3.7 for additional details.
66. (See p. 97.) The substance of these remarks is correct; however, there is some confusion about the number of secondary jobs. For operation, it was estimated that the support facility would result in 60 secondary jobs (Part I, Section 4.5.3.1) and the operations and support facilities together could result in 120 secondary jobs (Section 4.6.3.1).

67. (See p. 105.) Preliminary design studies indicate that the operations center would be heated by heat recovered from internal electronic equipment augmented by a natural gas boiler.

Tactical Air Command took over administration of Kingsley Field in 1981 and since that time the Hartford Insurance Company has inspected the boilers every June and October. The inspections include an internal and external examination of the boilers, plus hydrostatic testing of safety relief valves. In September 1982, the plant was converted to natural gas/oil fuel from wood chips. At that time, the heating plant personnel were trained on the system start-up and dual-fuel operation. The plant foreman and another worker are enrolled in Boiler Operations School, Medford, Oregon, and on completion of school requirements, they will be certified operators. All operators have been trained in boiler water treatment. Additional training will be supplied as required.

68. (See p. 144.) The economic effects are estimated in Part I, Sections 4.5.3.1 and 4.6.3.1.
69. (See p. 199.) Housing facilities on-base are required to be maintained at full occupancy. Therefore, it is presumed that space would not necessarily be available for OTH-B personnel. Consequently, the Draft EIS analysis addresses the capacity of off-base housing and resources.
70. (See p. 299.) The impact on wildlife at either site would be insignificant, especially with implementation of mitigation measures to improve adjacent habitat (see Response No. 76).
71. (See p. 299.) It is not clear that the effects would be significantly reduced if facility siting were carried out in the manner suggested. There seems to be little evidence that wildlife value or usage is less in the southeastern portion of either study area. At Buffalo Flat, in fact, a sage grouse lek is located near the southeastern corner of the study area.
72. (See p. 299.) Although the habitat from which big game species would be excluded receives occasional summer use, it supports few animals and does not include critical features such as winter range, migration routes, or fawning/kidding grounds.
73. (See p. 299.) The Air Force will consult with ODFW, BLM, and Fish and Wildlife Service staff biologists in developing a detailed wildlife mitigation plan.
74. (See p. 300.) Part I, Section 3.1.1.2.2 has been changed to reflect the information provided.

75. (See p. 300.) The presence of a sage grouse lek at Buffalo Well is noted. If the Buffalo Flat area is selected as the transmitter site, every effort will be made to avoid disturbing this strutting ground. ODFW staff recommendations will be sought regarding mitigation measures.
76. (See p. 300.) When the transmitter site has been selected, the Air Force will develop a detailed wildlife mitigation plan in close consultation with ODFW and BLM staff biologists.
77. (See pp. 287, 288, and 289.) The U.S. Forest Service and California Resources Agency recommendations for mitigating measures are under consideration by the Air Force. No determination of the appropriateness of these measures can be made until the Air Force has completed initial project design work and related siting analyses. Subsequently, the Air Force will apply to the Forest Service for a permit to use the site selected. The permit will be conditional on the development of a detailed wildlife mitigation plan that will be developed in close coordination with the Forest Service and the California Department of Fish and Game.
78. (See p. 288.) The erection of fences to exclude big game from habitat they now use is an impact. However, using tall fences that prevent animals from entering and becoming trapped within the exclusion fences would mitigate the impact.
79. (See 312.) As indicated in Part I, Section 4.1.3.9, a cultural resource survey will be conducted after engineering studies have been completed and a specific site has been identified.
80. (See p. 316.) The information sources used for the Draft EIS show discrepancy with those cited by the Resources Agency in its comments. However, Air Force accepts the facts offered in these comments as a supplement to Sections 3.3.1.5.1, 3.3.1.6.1, 3.4.1.5.1, 4.1.2.5.1, and 4.7.2.5.1 of the Draft EIS.
81. (See p. 317.) The text in Part I, Section 3.8.1.6.1 has been changed to incorporate the information provided according to the source cited on p. 4-78. The seismic risks are as stated in the Draft EIS. The Oregon transmitter sites are both in Zone 1 (minor damage probability), as are the California receiver sites, although they are near the border of Zone 2 (moderate damage probability). Kingsley Field is located in Zone 1, McChord is in Zone 3 (major damage probability) (as indicated in Section 3.7.1.6.1), McClellan is in Zone 3 (although the environmental narrative for the base states minor to moderate damage probability), and Mountain Home is in Zone 2 (as indicated in Section 3.9.1.6.1).

82. (See p. 305.) Power sources and the possible routes and means of transmission are identified for the four study areas in Part I, Sections 4.1.3.6, 4.2.3.6, 4.3.3.6, and 4.4.3.6. The Air Force and its engineer will coordinate with local power companies, BLM, and the Forest Service to establish power transmission rights of way (ROWs). These ROWs would be located on BLM and Forest Service lands, where these agencies have ROW permit authority. If necessary, ROW permits will be conditioned on environmental mitigation measures.
83. (See p. 305.) Discussion of potential fire hazard was provided for each facility type and site in Section 4 of the Draft EIS, Environmental Consequences. Additional detail was not considered necessary because the Air Force believes none of the OTH-B facilities would present an unusual fire risk.
84. (See p. 305.) Although the proposed sites are within the Pacific Flyway, they are not in areas that have any significant waterfowl flight traffic. Thus, there should be no impact on the radar operation or on waterfowl.
85. (See p. 305.) The primary public uses of the study areas are grazing and wood cutting. The possible effects on these activities are discussed in Part I, Sections 4.3.3.7 and 4.4.3.7. Mitigating measures will be established by the Air Force and USFS and will become conditions to the issuance of a Special User Permit.
86. (See p. 306.) The operation of OTH-B should have no effect on aerial forest management activities. Only the receiver, which does not emit RFR, would be located in the National Forest. The probable effects of the OTH-B transmitter (proposed for location on BLM lands in Christmas Valley, Oregon) on airborne communication and air navigation systems are discussed in Part I, Section C.3.1.2.5, pp. C-32 to C-36.

Part I, Section B.7, p. B-25 notes that the American National Standards Institute standard allows power densities between 1.0 and 36 mW/cm<sup>2</sup> for long-term human exposure at OTH-B frequencies. For the sky wave, these values correspond to distances between 250 and 1,500 ft (per Equation 3, p. B-7). These values imply averaging over substantial periods of time, whereas individuals in aircraft will be subject to only brief exposure. An additional margin of safety is provided by the metallic skin of an airplane, which is an effective shield of high frequency RFR. Therefore, RFR from the OTH-B transmitters is very unlikely to represent a hazard to either the personnel or the electronic instruments of aircraft used to support aerial management activities.

As mentioned in Response No. 43, the Air Force plans to coordinate air-safety matters with the FAA before the radar becomes operational. To ensure that Forest Service and BLM flight concerns are properly addressed, these agencies will be invited to participate in the planning and conduct of any resulting tests.

87. (See p. 302.) Part I, Section 3.8.1.4.1 has been changed to reflect the information provided.
88. (See p. 303.) The information provided has been added to Part I, Section 4.8.2.3.2.
89. (See p. 303.) The correction has been made.
90. (See p. 303.) The correction has been made.
91. (See p. 303.) The information provided has been incorporated into Part I, Section 4.8.2.2.2.
92. (See p. 303.) For the analysis of the effects on employment (Part I, Section 4.8.3.1), it is assumed that all labor would come from the local area. However, it is recognized that a few specialized technicians could come from outside the region (Part I, Section 4.8.3.2). The number of nonlocal workers is expected to be inconsequential. Therefore, the statements are not considered to be contradictory.
93. (See p. 303.) The sentence has been deleted.
94. (See p. 303.) The text has been changed to incorporate the information provided.

5 SUPPLEMENTAL INFORMATION ON THE BIOPHYSICAL ENVIRONMENT  
AND POSSIBLE ENVIRONMENTAL CONSEQUENCES OF THE PROPOSED ACTION

5.1 Mean Rock Transmitter Study Area

5.1.1 Plants

The Mean Rock study area was visited on May 29, 1983. The field survey confirmed in general the description of the affected environment presented in the Draft EIS. Certain additional observations are noted below.

The prevailing vegetation type throughout the study area is the big sagebrush community. Although the U.S. Bureau of Land Management (1981a) mapped much of the western portion of the area as a rabbitbrush vegetation type in its land use inventory, the dominant shrub is, in fact, big sagebrush in those sections, too. This portion of the study area may have been tilled at one time, reverted to rabbitbrush, and then eventually returned to big sagebrush dominance.

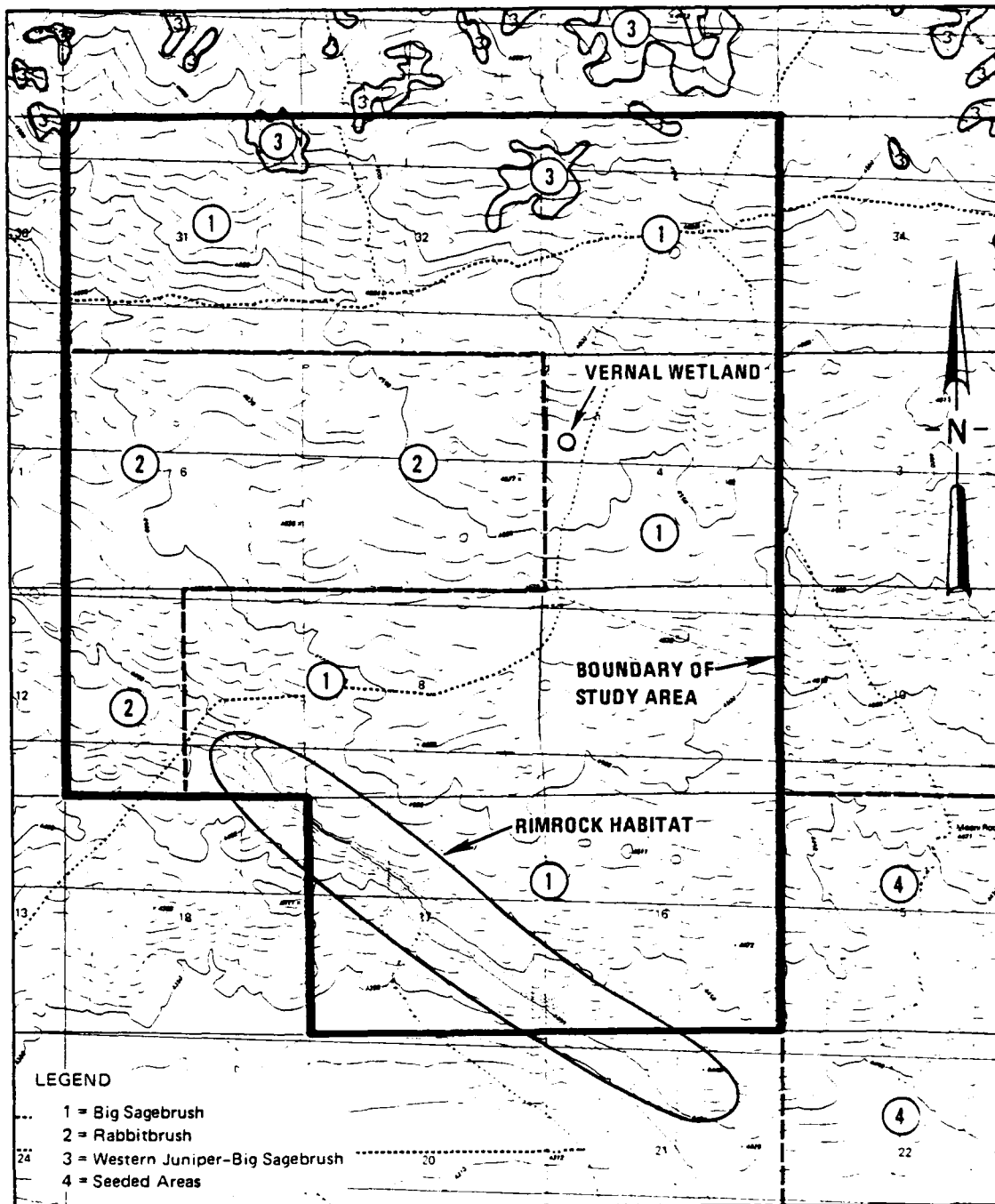
One localized site in the east-central portion of the study area (NW 1/4 Section 4) contained a small vernal wetland. This small basin supports silver sagebrush (Artemisia cana), navarretia (Navarretia sp.), mousetail (Myosurus spp.), and popcorn flower (Plagiobothrys sp.), as well as other wetland-associated plants. Figure 5-1 indicates the location of this basin. Other sites having a similar appearance on aerial photographs were field-checked, but did not support this type of wetland vegetation.

The low rimrock in the southern portion of the study area (Section 17) contained a diverse assemblage of plants. It included several species of gooseberry (Ribes spp.), phlox (Leptodactylon pungens), and a variety of herbaceous species not found elsewhere in the study area.

No rare or endangered plants were found in the Mean Rock study area. None of the habitats encountered were similar to those known to support rare plants elsewhere in the region. Based on these observations, rare plants seem extremely unlikely to occur in the study area.

The Air Force would seek to avoid disturbing the small wetland and the rimrock area in siting, constructing, and operating the OTH-B facility.





SOURCES: U.S. Bureau of Land Management (1981b), SRI Field Study, May 29, 1983.

FIGURE 5-1 MEAN ROCK STUDY AREA: VEGETATION MAP

### 5.1.2 Animals

A wildlife survey of the Mean Rock study area was conducted on May 29, 1983. Observations confirmed the description of the existing environment presented in the Draft EIS.

No game animals were seen in the study area. A single pronghorn antelope was encountered about 1 mile south of the study area boundary, but no mule deer or sage grouse were observed anywhere in the region. Nevertheless, the Oregon Department of Fish and Wildlife reports signs of both mule deer and antelope in the area during the summer (A. Faast, pers. comm., June 10, 1983). Red-tailed hawks were present, but no raptor nest sites were seen.

## 5.2 Rimrock Lake Receiver Study Area

### 5.2.1 Plants

The Rimrock Lake study area was surveyed in May and July 1983. The field survey confirmed in general the description of the affected environment presented in the Draft EIS. Certain additional observations are noted below.

The vegetation map in the Draft EIS (Figure 3-10) was adapted from a U.S. Forest Service map of vegetation types in the region. It indicates that the vegetation type dominated by low sagebrush is found on a relatively small portion of the study area. Field observations suggest that, in fact, low sagebrush is very widespread as the understory throughout the western juniper woodlands. Very little big sagebrush was seen in the Rimrock Lake study area except in the eastern and southern portion toward the Lone Pine Butte study area. This supports the conclusion that the Rimrock Lake area is generally of lower productivity than the Lone Pine Butte area.

A thorough survey was made for the rare and endangered Lassen bluegrass (Poa fibrata). Particular attention was paid to prior field investigations in the vicinity of a known historic locality (Horse Camp) and at other sites in the region that appeared to have alkaline soils. No populations of the Lassen bluegrass, or any Poa having rhizomes, were found. Discussions with agrostologists (grass experts) throughout California have indicated that the taxonomic distinctiveness of Poa fibrata may be doubtful, but further work on the taxon has been hampered by lack of recent collections.

A preliminary rare plant survey was conducted at the two receiver sites (Rimrock Lake and Lone Pine Butte) on May 27 and 28, 1983. None of the early-flowering rare plants that could occur in this region were found at that time. However, certain vernal pools and wet meadows on and near the Rimrock Lake study area appeared to be

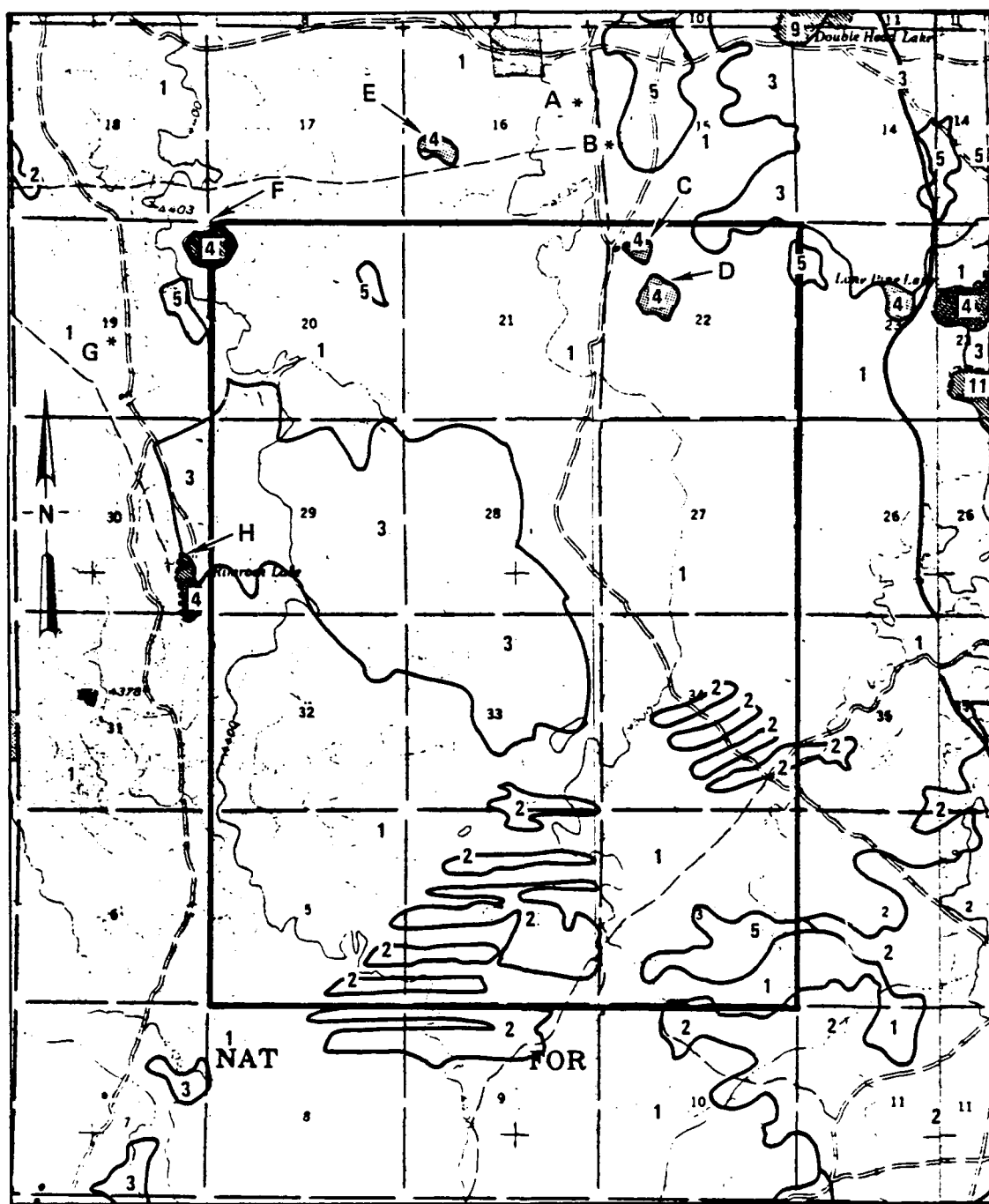
potential habitats for Mathias' coyote thistle (Eryngium mathiasiae) which flowers in midsummer. This species has only recently been described from a few localities in Modoc and Lassen counties, including a site just north of the Rimrock Lake study area.

A second field survey was carried out on July 16 and 17, 1983, specifically to search for populations of Mathias' coyote thistle. All vernal pool and wet meadow areas on and near the Rimrock Lake study area were carefully and systematically surveyed. Stock ponds were also examined wherever possible. Each area was surveyed on foot and all Eryngium were identified to species. The identification of all voucher specimens was verified by Drs. Lincoln Coustance and Yusuf Sheikh, the authorities who described the species Eryngium mathiasiae.

Eight populations of Mathias' coyote thistle were located during the survey of July 16 and 17, 1983. The sites are shown in Figure 5-2; most are around the western and northern periphery of the study area. Site A was a natural shallow vernal pool, relatively small. Sites B and G were also relatively small shallow vernal pools, whose drainage and depth had been modified to form stockponds. In these two sites, Mathias' coyote thistle was found primarily in the unmodified portions of the drainage channels. Sites C, D, E, F, and H were large natural vernal wetlands that supported very large populations of Mathias' coyote thistle. In some areas of the vernal pool bottoms, this species was one of the two or three most abundant plants in terms of relative cover.

In spite of these recent discoveries of additional populations of Mathias' coyote thistle, this species is still quite rare and localized in its distribution. It is currently known from less than 20 sites in Modoc and Lassen counties. Due to the relative inaccessibility of much of its potential range, additional populations may remain to be discovered. At present, however, Mathias' coyote thistle should continue to be considered rare and endangered.

Only three of the sites (C, D, and F) are located within the Rimrock Lake study area. To avoid unintentional impacts to the rare plant populations, any radar facilities would be sited to create a substantial buffer for these sites. Access roads and utility corridors would also be planned to avoid Mathias' coyote thistle populations. Since most of the rare plant sites are near existing roads, any improvements to these routes would be directed around the vernal pools themselves and culverts would be placed across drainageways to prevent modifications to the hydrology of the pools. If roads or other facilities are planned near the rare plant sites, temporary fences would be installed to prevent accidental damage to the plants or their habitat.



# LEGEND

Study Area Boundary

## Vegetation Types:

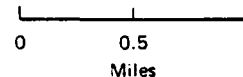
- 1 Western Juniper
- 2 Big Sagebrush
- 3 Low Sagebrush
- 4 Vernal Wetland
- 5 Dry Meadow

6 Water

7 Emergent Wetland

A through H: Location of Mathias' coyote thistle

# SCALE



SOURCES: U.S. Forest Service, Modoc National Forest Vegetation Map, SR1 Field Study, July 16-17, 1983.

FIGURE 5-2 RIMROCK LAKE STUDY AREA: VEGETATION MAP

#### 5.2.2 Animals

A wildlife survey of the Rimrock Lake study area was conducted on May 27 and 28, 1983. Observations confirmed the description of the existing environment presented in the Draft EIS.

6 SUPPLEMENTAL INFORMATION ON THE  
SOCIOECONOMIC ENVIRONMENT AND POSSIBLE  
ENVIRONMENTAL CONSEQUENCES OF THE PROPOSED ACTION

The Air Force has recently been directed to seek opportunities to reduce the number of uniformed military personnel where feasible. Analysis of manpower alternatives for OTH-B suggest that cost efficiencies could be achieved if civilian personnel filled a number of positions that had initially been planned for uniformed military at the support base. Public interest in this topic was expressed several times during the public hearings.\* This alternative and the socioeconomic consequences are described in the following paragraphs.

6.1 Kingsley Field Support Base

The use of a higher proportion of civilians to man the support base would not affect the general approach to operation and maintenance of the transmitter and receiver sites. A greater reliance on civilians would, however, reduce (1) the total number of personnel required, and (2) the need for structures at Kingsley Field to house military primary and support functions. These changes would reduce the capital and operating costs of the OTH-B system. The changes would also reduce the total economic benefits to the region, although this would be offset somewhat by increased employment opportunities in the region. It is anticipated that most of the OTH-B positions related to the transmitter and receiver sites would be filled by residents of Klamath Falls and, to a lesser extent, other areas near the transmitter and receiver sites. The facilities and services in the cities and towns where OTH-B employees are likely to locate are adequate. It is not expected that this alternative would cause adverse socioeconomic effects.

The workforce that would operate and maintain the transmit and receive facilities would consist of an estimated 200 civilian and 25 military personnel. The military contingent would fill critical operational and decisionmaking positions. Direct maintenance and security would be carried out by civilians. The civilian workforce would likely be a mixture of contractor and civil service employees.

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\* Refer to the following pages of the transcripts of the public hearings (Section 2): 30, 40, 98 to 100, 112, 116, 123, 137, 139, 140, 150, 151, 154, 165, and 190.

Support of the transmitter and receiver sites would be carried out in the same manner as the primarily military option described in Section 4 of the Draft EIS. At the transmitter and receiver sites, there would be three daily shifts of eight people each. There would also be sleeping and support facilities to accommodate off-duty personnel.

The primary difference between the civilian option and the military option presented in the Draft EIS is the reduced reliance on military personnel and, therefore, the reduced need for military facilities and thus base operating support (BOS) personnel that would provide housekeeping and similar support functions. The civilian option would increase OTH civilian employment by about 110 and decrease military employment by about 240.

For the military option, it was assumed that the military would be transferred to Kingsley Field from outside the region and that the civilians would be hired locally. It was also assumed that all military would reside in military housing (see Part I, Section 4.1.3).

For the civilian option, it is assumed again that the military would be transferred from outside the region and would reside in military housing. It is expected that most of the 200 civilians would be hired locally. However, some specialized skills and contractor personnel may come from outside the region. The amount of imported labor is not expected to exceed 25 persons. Most local hires would be from the Klamath Falls area. However, some hires would probably come from the areas around the transmitter and receiver sites.

The Klamath Falls area could accommodate the influx of 50 (25 civilians and 25 military) new households, as indicated in Part I, Section 4.6.3. However, it is possible that some of the civilian employees of OTH-B, those hired locally as well as from outside the region, may relocate to the areas closer to the transmitter and receiver sites than Klamath Falls.

Some personnel may choose to locate in Alturas, although it is considerably smaller and about the same distance from the receiver site as Klamath Falls. As indicated in Part I, Section 4.3.3.4, Alturas could accommodate several dozen new households.

Klamath Falls is about 125 miles from the transmitter site. Figure 3-3 in Part I shows that Bend and several rural centers are closer. Consequently, a few workers may gravitate to these areas.

The number of people seeking homes outside Klamath Falls is expected to be limited. Bend, the only comparable urban area, could accommodate several dozen new families. Some employees may opt to live in Christmas Valley. As described in Part I, Section 3.1.2.4, 90% of the housing in that area is mobile homes and there are few, if any, housing vacancies. However, in the Christmas Valley town center, residential land is available and inexpensive, and water and power are

available. Also, more than 40 mobile home spaces are available in three parks. The population of Christmas Valley has grown rapidly in recent years, and the general community attitude is favorable to residential and economic growth.

In sum, the option to use a greater number of civilians would reduce the overall level of OTH-B employment in the region but would increase the number of civilian jobs available to the local labor force. The facilities and services in the cities and towns where OTH-B employees are likely to locate are adequate, and adverse socioeconomic impacts are not expected.

## 6.2 Kingsley Field Operations Center and Support Base

If both the operations center and support base were located at Kingsley Field and civilians filled noncritical positions, the total workforce would consist of about 260 military and 370 civilians. The military contingent would fill critical management and operational positions while civilians would fill many system maintenance, security, and other support positions.

The military option presented in Part I of the Draft EIS called for 590 military and 190 civilian. A smaller number of uniformed military personnel would in turn reduce the number of BOS personnel required and consequently would reduce the total manpower requirements by about 150 personnel.

For the military option, it was assumed that the military would be transferred to Kingsley Field from outside the region and that the civilians would be hired locally. It was also assumed that 483 military would reside in military housing and that 107 would seek housing in the community (see Part I, Section 4.6.3).

For the civilian option it is assumed, again, that the military would be transferred from outside the region and that less than 10 would seek housing in the community. It is expected that most of the 370 civilians (200 of whom would be associated with the support base, Part II, Section 6.1) would be hired locally. However, some specialized skills and contractor personnel may come from outside the region. The amount of imported labor is not expected to exceed 50 persons: 25 for the operations center and 25 for the support base. Most local hires for the operations center are expected to be from the Klamath Falls area. The Klamath Falls area could accommodate the influx of 310 new households, as indicated in Part I, Section 4.6.3.

This alternative would bring fewer people to the Klamath Falls region than the military alternative. The economic benefits of the civilian option would be somewhat less than those of the military option as would be the demand for community facilities and services. It is not expected that this alternative would cause adverse socioeconomic effects.





## 7 ERRATA FOR PART I

The following errata pertain to the Draft EIS issued in March 1983. The errata primarily address responses to comments.

- p. S-10, para. 3,\* sent. 2: delete
- p. S-18, Table S-1, Housing, Receiver Site, Operation: should read "no demand likely in Alturas"
- p. S-18, Table S-1, Housing, Operations center site, Mountain Home AFB, Operation: "shortage of rental units possible but unlikely" should read "adequate housing in region"
- p. 2-16, Table 2-2, C. Operation Centers Sites, Mountain Home, Housing: "Possible shortage of rental units" should read "Adequate"
- p. 2-18, para. 2, sent. 3: delete "except perhaps for rental units at Mountain Home AFB."
- p. 3-5, para. 6, sent. 2: replace with, "Deer and antelope signs have shown summer use; however, during the summer the Paulina, Fort Rock, and Silver Lake deer herds occupy habitats at much higher elevations in the mountains to the west."
- p. 3-5, para. 6, sent. 3: "wintger" should read "winter"
- p. 3-24 para. 6, sent. 3: replace with "The northwestern portion of the study area is in the only pasture of the 13,800-acre Peter Creek Allotment, which has a grazing productivity of 14 acres per animal unit months (AUM)\* per acre per season."
- p. 3-24 para. 6, sent. 4: replace with "The permittee of the Peter Creek Allotment is allowed to use 329 AUMs of the total 987 available."
- p. 3-25 Fig. 3-4: "Peters Creek Allotment" should read "Peter Creek Allotment"

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\* Paragraphs are numbered beginning with the first partial or complete paragraph on a page.

- p. 3-26 para. 1, sent. 1: replace with "The study area is in parts of two other pastures, which are in the 524,180-acre Viewpoint Allotment and have a grazing productivity of about 18 acres/AUM."
- p. 3-26 para. 1, sent. 2: replace with "There are 29,169 AUMs available to livestock on the Viewpoint Allotment and the permittee, the ZX Ranch, is allowed to use 32,657 AUMs. The shortage of AUMs is to be made up through an allocation of surplus AUMs expected to be available in the Prineville District, where the ZX presently has an allocation of 5,000 AUMs."
- p. 3-26 para. 6, last sent.: "does" should read "did"
- p. 3-32 para. 5, sent. 2: delete "more wooded"
- p. 3-64 para. 4, sent. 1: should read "in the study area"
- p. 3-66 para. 7: replace with: "Real and others (1978) show numerous earthquake epicenters of magnitude M4.0 or greater, occurring between 1900 and 1974, within 150 miles of the sites; Topozada and others (1979) show additional epicenters of earthquakes occurring between 1975 and March 1979 within 150 miles of the sites. Also, Jennings (1975) shows two major Quaternary faults, the Likely fault and Surprise Valley fault, in Modoc County, the closest within approximately 15 miles of the sites (Jennings, 1975; Gay and Aune, 1958). Gay, T.E., Jr., and Q.A. Aune, (1958), Alturas Sheet--Geologic map of California; California Division of Mines and Geology. Jennings, C.W. (1975), Fault map of California; California Division of Mines and Geology Data Map No. 1. Real, C.R., T.R. Topozada and D.L. Parke (1978), Earthquake epicenter map of California; California Division of Mines and Geology Data Map Sheet 39. Topozada, T.R., C.R. Real, and D.C. Pierzinski (1979), Seismicity of California, January 1975 through March 1979; in California Geology, Vol. 37, No. 7, July 1979, p. 139-142."
- p. 3-67 para. 1, last sent.: replace with "Nondestructive fires within the management area will be contained by natural or man-made barriers. Fires outside the area will be controlled."
- p. 3-126 para. 7, sent. 1: replace with "The Sacramento area, including McClellan AFB, has been designated as a Nonattainment Area for CO, ozone, and TSP."
- p. 3-126 para. 7, sent. 3: should read "In comparison, annual point source emissions on McClellan AFB in 1979 were 25 tons of TSP, 620 tons of CO, 180 tons of NO<sub>x</sub>, 40 tons of SO<sub>x</sub>, and 750 tons of total organics."

- p. 3-127 para. 2, sent. 1: replace "California Air Resources Board" with "Sacramento County Air Pollution Control District."
- p. 3-127 para. 5, sent. 2: replace "4 to 5 million" with "3 to 3.5 million"
- p. 3-130 para. 1, sent. 1: replace with "There are three faults in the vicinity of McClellan. The Midland fault is located approximately 30 miles to the southeast. According to Jennings (1975) and Wagner and others (1981), the Bear Mountain fault zone and an unnamed fault in Yolo County north of Woodland are within 30 miles of the site. Both of these show signs of Quaternary activity along at least parts of their length (Jennings, 1975; Woodward-Clyde Consultants, 1977). Wagner, D.L., C.W. Jennings, T.L. Bedrossian, and E.J. Bortugno (1981), Geologic map of the Sacramento quadrangle; California Division of Mines and Geology Regional Map Series Map No. 1A. Woodward-Clyde Consultants, 1977, Earthquake evaluation studies of the Auburn dam area; prepared as U.S. Bureau of Reclamation Open File Report."
- p. 3-130 para. 5, sent. 1: replace "northwest" with "northeast"
- p. 3-138 para. 2, sent. 1: replace with "The proposed site for the OTH-B operations center is in the northeast portion of the base near the perimeter fenceline."
- p. 3-148 para. 7, sent. 4: delete
- p. 3-149 para. 1, sent. 2: replace with "In 1982, vacancy rates for rentals averaged 4% in the Mountain Home area and about 12% in Boise."
- p. 3-153 para. 1, sent. 1: replace "trailers" with "relocatables"
- p. 4-72 para. 2, sent. 3: replace "significant" with "relatively large"
- p. 4-72 para. 6, sent. 1: should read " . . . particularly if they carpooled or were bussed."
- p. 4-74 para. 3, sent. 1: replace "notice" with "a Notice to Construct and issues a Notice of Approval"
- p. 4-75 para. 3, sent. 3: replace "Class I" with "Class II"
- p. 4-75 para. 3, sent. 4: replace "remains" with "will be designated"
- p. 4-75 para. 4, sent. 3: replace with "Detailed air quality modeling is not required for non-major sources affecting Class II areas."

- p. 4-79 para. 3, sent. 4: should read "Substantial additional expenses . . . "
- p. 4-79 para. 3: add new sentence after sent. 4 to read "This spending would occur outside the ROI."
- p. 4-82 para. 5, sent. 2: "would" should read "could"
- p. 4-84 para. 6, sent. 2: "3,300" should read "3,200"
- p. 4-84 para. 6, sent. 4: should read "This amounts to about 70 AUMs in the northwest allotment and 180 AUMs in the southern allotment."
- p. 4-85 para. 1, sent. 1: should read " . . . small amount of resource potentially affected (a maximum of 250 AUMs of a total of about 29,000 AUMs controlled by the ZX). Furthermore, it is anticipated that there will be surplus forage in the Prineville District that will be made available to the ZX to offset present shortages in the Viewpoint Allotment as well as losses that could result from the OTH-B program."
- p. 4-85 para. 2, sent. 1: replace with "The use of 2,800 to 4,000 acres in the affected allotments would preclude use of about 200 to 260 AUMs with a market value of about \$9,000 to \$12,000."
- p. 4-94 para. 1, sent. 1: delete "point"
- p. 4-94 para. 2, sent. 1 and 2: replace with "Topographically, Fossil Lake is a depression, and at the closest perimeter the antenna could be 6 miles to the southeast and visible at about 0.3 deg above the horizon."
- p. 4-94 para. 2, sent. 4: delete "barely" and "only"
- p. 4-94 para. 2, sent. 4: should begin a new paragraph
- p. 4-94 para. 3: insert new sentence after sent. 2 to read "However, visitors frequently use the tops of the dunes, and the radar facilities would be visible from such high points."
- p. 4-94 insert new paragraph after para. 3 to read "The Sand Dunes experience several thousand visitor-days annually. The use is highly seasonal, with the predominant number of visits (1,500 to 2,000 visitor days) occurring in May and June. The dunes are popular among offroad vehicle enthusiasts as well as wilderness users."

- p. 4-94 para. 4, sent. 2: delete "(3) much of the area is seldom used" and replace "(4)" with "(3)"
- p. 4-94 para. 4, sent. 4: should read: " . . . to man-made features than users of primitive recreation areas."
- p. 4-94 para. 4, sent. 5 and 6: replace with "The antenna would be a significant visual feature. However, it would probably not be significant enough . . . "
- p. 4-102 last para., sent. 2: should read "Fire fighting resources available . . ."
- p. 4-106 para. 2, sent. 1: replace "is" with "would be"
- p. 4-107 last para., line 5: replace "BLM" with "Forest Service"
- p. 4-116 para. 1, line 5 and para. 4, line 1: "Moritz" should be "Mowitz"
- p. 4-144 para. 5: insert new sentence after sent. 3, to read "Off-base, a 100-unit apartment house and five single-family homes are located within 400 feet of the proposed site."
- p. 4-144 para. 5, sent. 4: should read "At these on- and off-base locations, noise levels . . . "
- p. 4-145 para. 2, sent. 3: should read " . . . would be followed, including augmentation of the water quality sampling program by one sample per month."
- p. 4-148 para. 4, sent. 3: delete
- p. 4-149 para. 5, sent. 1: should read " . . . would not directly affect other land uses in the area. However, the site being considered for the OTH-B facility is also being considered for use as a picnic and family camp area. The ultimate use of the site will be determined internally by the AF."
- p. 4-154 para. 5, sent. 2: should read " . . . in base housing, it is assumed, for the purpose of assessing the maximum potential demand, that all families will seek off-base housing."
- p. 4-155 para. 2, sent. 1: should read " . . . as readily available in Mountain Home as ownership units"
- p. C-5 label under fifth box in left column: "Ane" should be "Area"